Chemical Engineering

J. ELTON TUOHIG
Publisher

CECIL H. CHILTON
Editor-in-Chief

In August 1946 *Chemical & Metallurgical Engineering* was renamed *Chemical Engineering*. *Chemical & Metallurgical Engineering* was the successor to *Metallurgical & Chemical Engineering*, which, in turn, was a consolidation of *Electrochemical & Metallurgical Industry and Iron & Steel Magazine*. The magazine was originally founded as *Electrochemical Industry*.

McGRAW-HILL PUBLISHING COMPANY, INC., NEW YORK CITY

Volume 69

January to December 1962

GENERAL ALPHABETICAL INDEX

A

Absorption — Gas scrubbing — Catacarb catalyzed scrubbing process improves cleanup (chart) (N) ..... Nov. 26 60
Acetaldehyde—Celanese plant in Bay City, Texas, uses German route (N) ..... Sept. 3 *82
Acetic acid—Oxidation of light hydrocarbons—new British route to acetic (C) ..... Dec. 10 58
Acetonitrile extraction process ups butadiene output (chart) (N) .. June 25 *68
Acetylene
Methylacetylene industrial gas called Mapp ..... Jan. 22 80
New derivatives aim at new uses ..... Feb. 19 86
Acids
Acrylic acid—British process uses propylene as raw material (C) .. Oct. 29 55
Catalysts—acidic catalysts ..... Oct. 1 62
Humic acid extracted from coal (C) Jan. 8-38, (N) Apr. 30 *68
Levulinic acid to be made from pulping byproducts (C) ..... Jan. 22 64
Methacrylic acid — Escambia plans commercial plant for new route (C) ..... July 23 58
Peracetic acid—new low-cost process from FMC Corp. (chart) (N) . Sept. 3 84
Versatic acid—new branched organic acid ..... Apr. 2 *64
Acrylates
Dow Badische's simple direct route — flowsheet. T. P. Forbath ..... Mar. 5 *96
Isobutyl acrylate goes commercial ..... May 14 102
Methacrylate polymer in solution form ..... Sept. 3 92
Methacrylates—Escambia plans commercial plant for new route (C) ..... July 23 58
Methyl methacrylate—American Cyanamid will build plant at Fortier, La. (C) ..... Sept. 17 94
Acrylics
Acrylic monomers—HEMA and HPMA ..... Oct. 15 98
Esters—propylene is raw material for acrylic esters in British process (C) ..... Oct. 29 55
Fiber, called Tacryl, from Sweden resists soil (C) ..... Oct. 1 37
Fiber, called Zefkrome, from Dow (C) ..... Feb. 5 38
Flame-retardent acrylics — Polycast Corp. process optioned by Du Pont (C) ..... Apr. 30 56
"Semi-acrylic fiber" announced by Courtaulds (C) ..... Mar. 5 55
Acrylonitrile—ABS plastics array via three polymerization lines — flowsheet ..... Sept. 17 *154
Adhesives
Acrylic-containing emulsion bonds to nonporous surfaces ..... Aug. 6 86
Epoxy pellets bond by melting in place ..... Jan. 8 64
Epoxy powder for high-strength rubber-to-metal bonds ..... Mar. 29 98
Foam-to-fabric adhesive ..... Oct. 15 100
Adsorption
Activated-carbon adsorption system from Vacumite removes syndets from water (C) ..... Mar. 19 73
Adsorbent eases cleanup of ABS from laundry waste water (C) .... Nov. 12 84
Adsorption theory guides process design—CE Refresher. Coates & Pressburg (charts) ..... Feb. 19 *129
Fixed-bed adsorber eases radioisotope separation (N) ..... Apr. 2 58
Moving-bed system adsorbs contaminants continuously (N) ..... Feb. 19 78
Unisorb process concentrates aromatics for hydrodealkylation (C) ... May 28 68
Agricultural Chemicals
Fertilizer additive controls nitrogen losses in soil ..... Sept. 3 92
Humic acid, fertilizer additive, extracted from coal (C) .. Jan. 8-38, (N) Apr. 30 *68
Maleic hydrazide spray keeps grass short ..... Jan. 8 64
Mulch—petroleum mulch sends crop yields upward (table) ..... May 28 *90
Russia readies remedy for lag in farm chemicals (N) ..... June 11 102
TVA's basic concentrate for mix-your-own fertilizers (C) ..... Sept. 17 94
Air Conditioning—Solar energy drives pilot air conditioner (N) .... Oct. 15 96
Air pollution regulations—report. J. E. Yocom (charts) ..... July 23 *103
Alaska dam—Rampart Project dam could spawn power-based industries (tables) (map) (N) ..... Oct. 1 44
Alcohol
Aldox plant at Baton Rouge, La., moves toward startup (C) ..... May 28 70
(N) June 25 *78
Alfols—Conoco tames difficult reactions via polymerization of ethylene (chart) (N) ..... May 14 *80
Alfols now in commercial production ..... Sept. 17 116
Denaturing—Government okays plan to denature alcohol automatically (C) ..... Feb. 19 55
Denaturing—line-blending precision allows direct denaturing ..... Oct. 29 *66
Trihydric alcohol threatens glycerin ..... Mar. 5 80
Alkylbenzene sulfonates see under **Detergents**
Alloys
Acid-resistant alloy for use in nuclear fuels reprocessing (C) ..... Mar. 16 78
Magnetic alloy is ductile ..... Feb. 19 *82
Research seeks way to predict properties from alloy composition (N) ..... Sept. 17 112
Alumina
Acid-extraction route from Australia (C) ..... Mar. 5 58
Alumina catalysts ..... Apr. 16 100
Hydrated alumina ..... May 14 *100
Aluminum
Alaska dam could supply cheap power for aluminum industry (tables) (map) (N) ..... Oct. 1 44
Aluminum pipe wins bigger role in oil well drilling (N) ..... Apr. 2 *56
Glass-reinforced aluminum for filament-wound vessels (N) ..... Mar. 5 74
New techniques for extraction and reduction of alumina (C) ..... Mar. 5 58
Outlook shiny for Pacific Northwest (N) ..... Aug. 20 76
Sphere stores rocket fuel (N) ... Aug. 6 *80
Two new entries—Conalco plant coming; Kentucky Aluminum seeks funds (N) ..... Feb. 5 58
American Chemical Society
Autumn meeting, Atlantic City, N. J. (N) ..... Aug. 20 64
Polymer group discusses irradiation, luminescence in new techniques (N) ..... Oct. 15 90
Polymer Symposium at East Lansing, Mich. (C) ..... July 9 78
Polymers, water, metallurgy—topics at national meeting (C) ..... Apr. 16 78
American Institute of Chemical Engineers —Panel tones down cries of engineer shortage ..... Feb. 5 115
American Petroleum Institute—How hydrogen attacks steel—first results of research program (chart) ... Mar. 5 *142
Amine treating of sour gas—flowsheet. Peter Brennan ..... Oct. 29 *94
Ammonia
Ammonia synthesis gas via one-step process for reforming naphtha (C) ..... Oct. 1 40
Canadian Industries plant switches to natural gas feedstock (C) ... May 14 73
Catacarb scrubbing process gets commercial tryout in Mexico (C) Sept. 3-65, (Charts) (N) ..... Nov. 26 60
Flotation of ores fostered by ammonia (N) ..... July 9 98
Food demand ups need for fertilizers. S. Strelzoff (tables) (N) ..... Feb. 5 *44
IMC will make its own ammonia (C) ..... Aug. 20 60
Physical properties of ammonia. A. M. P. Tans (chart) (P.N.) ..... July 9 162
Process simulation improves ammonia plant operations. Armstrong & Olson (charts) ..... Sept. 3 *135
Shipping—subzero shipping opens new vistas (tables) (map) (N) ... Aug. 6 *64
Trinidad ammonia will move in low-temperature tankers (C) .... June 25 53
Anhydrides — Liquid anhydride — epoxy curing agent ..... Dec. 10 90
Annealing—Exothermics put heat on annealing outlays ..... June 25 *146
Antarctica's first nuclear-power plant (N) ..... Sept. 3 *88
Asphaltic spray mulch boosts crop yields (table) ..... May 28 *90
Atomic Power
Antarctica's first nuclear power plant (N) ..... Sept. 3 *88
AEC high-level report gives nuclear outlook (N) ..... Dec. 24 36
AEC starts its big-power bid (N) ..... Oct. 1 56
Atomic radiation—catalyst for ethyl bromide process. (C) ... Dec. 10 58, (N) Dec. 24 *40
Coolant cleanup: key support for new nuclear plant—flowsheet. M. D. Robbins ..... Sept. 3 *110
Cyclotron (ORIC) and spaceflight reactor announced by AEC (N) . June 11 104
Nuclear-derived electric power may be competitive (N) ..... Apr. 30 70
Nuclear energy—will it fit the CPI?—AEC survey. R. W. Ritzmann (tables) ..... Sept. 3 117
Nuclear fuels reprocessing see **Fuels**
Nuclear project aims to improve fuel cycles (N) ..... May 28 84
Nuclear welding method developed in Russia (C) ..... May 14 78
Plutonium processing via ion-exchange system wins favor (chart) (N) . Apr. 2 *44
Radiation damage—topic of international symposium (N) ..... June 11 100
Reactor, called SPERT IV, bolsters nuclear safety project (N) .. Sept. 3 88
Reactor for experiments to improve nuclear fuel utilization (N) .. May 28 *86
Reactor testing program studies accidents, core damage (N) .... Nov. 26 58
Small hot nuclear power plant coupled to turbogenerator (C) ..... Oct. 15 78
Storable form for nuclear energy to get study (N) ..... Jan. 22 76
Strontium-90 fuel—crash program fills exotic fuel need (chart) (N) . June 11 94
Strontium-90 process stretches worth of nuclear fuel—flowsheet ..... Jan. 8 *76
Technetium price slashed by process refinements at AEC plant (N) . Aug. 6 78
Automation
Automated plants run despite strikes (C) ..... Dec. 24 26
Computerized quality control. J. R. Wilson ..... May 28 *140
IBM announces automatic type reader (C) ..... Dec. 24 21
Soap-making controlled by computer at automated English plant—flowsheet ..... Oct. 15 *152
Automobiles—No-care cars: doom of future lube markets? (table) .. Apr. 30 *60
Awards
"Chemical Engineering's" first Callaham Award goes to Dimitrios Caratzas (N) ..... Mar. 19 *7

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Chemical Week's Kirkpatrick Award for Management Achievement goes to Hercules (N) ....Nov. 26 *58
Azodicarbonamide—Blowing agents grow on foam expansion (tables) (N) Mar. 19 *84

B

Bacteria
Bacterial action in the Norco process converts garbage to fertilizer (C) Apr. 2 35
Biochemical fuel cell promises useful future (N) ....Apr. 2 54
Biocide can also act as wood preservative ....Jan. 22 80
Barium—Magnetic barium ferrite is easy to cut ....Jan. 8 64
Batch Operations—Analog simulation for optimizing batch-continuous systems. J. J. Munson (charts) ....July 9 *139
Bearings—maintenance and lubrication of motor bearings. J. R. Autenrieth Apr. 2 *128
Beer—How Schaefer brews beer—flowsheet ....June 25 *94
Belgium—Butyl plant will use know-how that quadrupled output in Canada (chart) (N) ....June 11 *90
Benzene
HDA—thermal route to petro-benzene called simpler (C) ....Mar. 5 53
Hydrodealkylation touted for upgrading coke-oven benzene (N)..Mar. 19 94
Phenol via air oxidation of benzene at Monsanto Australian plant (C) June 11 86
Beryllium
Beryllium-copper powder yields high-strength parts ....Aug. 6 84
Beryllium oxides—Vitro Minerals pilot plant in Utah (C) ....Feb. 19 57
Brush Beryllium deflates hopes for boom in domestic ores (C) ..Jan. 8 33
Direct-extraction processes seem best hope for U. S. ores (C)....Feb. 19 55
Direct extraction—Vitro's Utah pilot plant passes test (C)....July 9 80
Beryllium oxide
Vitro building pilot plant in Utah (C) Feb. 19 57
Pilot plant passes test (C)...July 9 80
Bins—Chart finds "lost volume" in cylindrical storage bins. A. Vaillant (P.N.) Feb. 19 *148
Bleaching — Pulp-bleaching sequence, CEDPD, improves brightness (C) Feb. 5 40
Blending—Liquid-solids blending—report. J. J. Fischer (charts)....Feb. 5 *83
Boilers
Maintenance—Chemistry in maintenance report. C. M. Loucks (chart) Mar. 5 110
Navy boilers restore steam balance at Union Carbide plant (N)....Apr. 2 *52
Bonding—English process achieves better rubber-to-metal bond (C).Oct. 29 60
Bonding agents—Rubber compound prevents tire tread separation...May 14 *98
Book Reviews
Advanced organic chemistry. Fieser & Fieser ....Mar. 5 182
Advances in chemical engineering vol. 3. Ed. by T. B. Drew & others Sept. 17 240
Advances in space science and technology, Vol. 3. Ed. by F. I. Ordway, III Apr. 16 243
Applied hydrocarbon thermodynamics. W. C. Edmister ....Oct. 15 256
Automatic control of chemical and petroleum processes. Williams & Lauher ....Mar. 19 239
Ballistic missile and space vehicle systems. Seifert & Brown ....Apr. 16 240
Basic principles of the tracer method. W. E. Sheppard....Aug. 20 198
Block and graft polymers. Buriant & Hoffman ....Jan. 22 184
CE's Technical Bookshelf—how it works ....Dec. 24 124
Concrete properties and manufacture. T. N. W. Akroyd ....Dec. 10 234
The consulting engineer. C. M. Stanley ....Mar. 19 239
Design data for aeronautics and astronautics: a compilation of existing data. Ed. by Morrison & Ingle..Apr. 16 243
The determination of stability constants. Rossotti & Rossotti..Apr. 30 160
Digital computation for chemical engineers. L. Lapidus ....June 11 291
Distillation—principles and design procedures. R. J. Hengstebeck..June 11 290
Dynamic optimization and control—a variational approach. W. Kipiniak Apr. 2 161
Dynamic physical chemistry. J. Rose July 23 179
The dynamics of personal efficiency. D. A. & E. C. Laird....Sept. 3 205
Engineering without wheels. N. Swindin & others ....Dec. 10 233
Escape and survival: clinical and biological problems in aero space medicine. Ed. by P. Bergeret....Apr. 16 245
Filtration. G. D. Dickey....July 9 196
Fundamentals of chemical engineering. C. M. Thatcher ....Oct. 29 165
Glass reinforced plastics. 3rd edition. Ed. by Phillip Morgan ....Aug. 6 185
Great chemists. Eduard Farber..June 25 175
Guide to rockets, missiles and satellites. Second ed. H. E. Newell....Apr. 16 244
Heat, mass and momentum transfer. Rohsenow & Choi ....May 28 174
Heat-transfer calculations by finite differences. G. M. Dusinberre....Mar. 5 185
How to create new ideas. J. W. Taylor Sept. 3 206
How to get more done in less time. J. D. Cooper ....Sept. 3 205
How to prepare for management responsibilities. Compiled by C. A. Unbach, Jr. ....Sept. 3 203
How to put yourself across. Elmer Wheeler ....Sept. 3 206
Industrial painting: the engineered approach. Martinson & Sisler..June 11 292
Industrial process measuring instruments. G. C. Carroll ....Nov. 12 312
Inert atmospheres in the chemical, metallurgical and atomic energy industries. White & Smith....Nov. 12 308
Interfacial phenomena. Davies & Rideal Aug. 6 183
Introduction to chemical instrumentation. E. J. Bair ....May 28 175
Iodide metals and metal iodides. R. F. Rolsten ....June 25 177
Laboratory planning for chemistry and chemical engineering. H. F. Lewis Nov. 26 178
Legal aspects of engineering. R. C. Vaughn ....Aug. 20 198
Magic shortcuts to executive success. G. L. Davis ....Sept. 3 200
The management makers. Aures Uris Sept. 3 206
Manual for process engineering calculations. 2nd ed. Clarke & Davidson Nov. 2 307
Material and energy balances. Schmidt & List ....Oct. 15 257
Mathematical methods in physics and engineering. J. W. Dettman...Oct. 1 155
Momentum, heat, and mass transfer. Bennett & Myers....Oct. 29 165
Numerical methods for scientists and engineers. R. W. Hamming..Nov. 12 316
Of time, work and leisure. Sebastian de Grazia ....Sept. 3 209
Outer space: prospects for man and society. American Assembly, Columbia University ....Apr. 16 244
Peacetime uses of outer space. Ed. by S. Ramo ....Apr. 16 244
The philosophy and logic of chemical engineering. H. F. Rase....July 9 196
Probability and experimental errors in science. L. G. Parratt....Jan. 8 158
Progress in reaction kinetics. Ed. by G. Porter ....Jan. 22 184
Psychophysiological aspects of space flight. Ed. by B. E. Flaherty..Apr. 16 243
Recent advances in heat and mass transfer. Ed. by J. J. Harnett & others ....Feb. 19 190
Reliability theory and practice. I. Brazovsky ....Apr. 16 241
Rocket development—liquid-fuel rocket research 1929-1941. R. H. Goddard Apr. 16 241
Speech power: magic shortcut to success. Adelbert Brown ....Sept. 3 205
Statistical thermodynamics. Norman Davidson ....June 25 176
Steroid drugs. Norman Applezweig Nov. 12 319
The successful supervisor in government and business. W. R. Van Dersal Sept. 3 203
Synthetic lubricants. Ed. by Gunderson & Hart ....Nov. 12 318
Systems engineering for the process industries. T. J. Williams...Mar. 19 239
Systems engineering mathematics. Alexander & Bailey ....Oct. 1 157
Temperature measurement in engineering. Vol. II. H. D. Baker & others Apr. 30 158
A textbook of quantitative inorganic analysis. 3rd edition. A. I. Vogel Sept. 17 241
Theory of energy and mass transfer. Lykov & Mikhaylov ....July 23 178
Thermal regimes of combustion. L. A. Vulis ....Aug. 6 184
Thermoelectricity: science and engineering. R. R. Heikes & others Jan.22 184
A third survey of domestic electronic digital computing systems. M. H. Weik, Jr. ....May 14 264
Water-soluble resins. Ed. by Davidson & Sittig ....Dec. 10 233
Weightlessness — physical phenomena and biological effects. E. T. Benedikt Apr. 16 241
Write right—books for technical writers Feb. 5 174
Your future in chemical engineering. Raymond L. Feder ....Jan. 8 158
Borohydrides — ammonium borohydrides June 25 80
Brewing—Beer brewing at Schaefer's—flowsheet ....June 25 *94
Bromine—High-purity bromine...July 23 *80
Bubble Caps—Pressure drop through bubble caps. Francis Van Hecke (charts & tables) ....Nov. 12 233
Burner—European acoustic burner may make U. S. debut (C)....Sept. 17 96
Butadiene
ABS plastics via three polymerization lines—flowsheet ....Sept. 17 *154
Acetonitrile extraction process uncorks bottleneck (N) (chart) ....June 25 *68
Butenes—Maleic anhydride made from butenes by unique process (C) Jan. 8 33
Butyl rubber see **Rubber**

C

Calcination
Fluid-bed processing—where it stands today. R. J. Priestley (charts) July 9 *125
Radioactive wastes calcined on pilot-plant scale (C) ....Nov. 26 47
Calculations
Charts find volume of gas for heating coke ovens. V. S. Gupta (P.N.) Apr. 16 *184
Diffusion coefficients in binary liquid systems. Canjar & Kamal (tables) Dec. 10 159
Filter calculations — countercurrent washing simplified. Bryant Fitch (charts) ....Jan. 22 *119
Filtration—Practical filtration formulas. J. C. Sharbaugh (charts & tables) Dec. 10 *153
Free-energy minimization. R. C. Oliver & others (tables)....Feb. 19 121
Gas compressions. D. M. Church
Pt 1 Thermodynamics of ideal gases Mar. 5 *127
Pt 2 Simplified nonideal gas calculations ....Mar. 19 *167
Pt 3 How to pick centrifugal compressors ....Apr. 2 *117
Graphical method simplifies heat-exchanger calculations. Mickley & Korchak (charts)
Determining performance....Oct. 15 *181
Finding optimum economic size Nov. 12 *239
Liquid densities—improved equation to estimate liquid densities. S. H. Fishtine (P.N.) ....Sept. 3 154
Optimize solute-recovery operations. J. F. Kuong....Mar. 19 *173
Pressure drop in vapor-relief systems Oct. 29 101
Reactor design simplified by new equations. B. S. Wright....July 23 *115
Recirculation via heat exchangers. T. A. Unger (charts)....July 23 *119
Scale-up series. F. A. Holland (charts & tables)
Liquid-mixing systems....Sept 17 179
Heat exchange systems....Nov. 26 119
Fluid-flow systems ....Dec. 24 71
Simple method finds logarithmic means values. Hans Huesler (P.N.)..Aug. 6 *144
Straight lines find plates in a fractionator. Diab & Haruni (P.N.) Apr. 16 *178
Systematic analysis simplifies problem solving. Wales & Schweitzer..Mar. 19 *165
Tower diameter—new equation gives tower diameter. N. H. Chen..Feb. 5 *109
Transport data—new equation correlates transport properties. P.N. Srinivasa Rao & others (table) (P.N.) May 15 *198
Using pVT data, to calculate enthalpy and entropy. David Cornell (charts & tables) ....Mar. 19 *159
Canada
Cresols process leads to expanded output (chart) (N)....Aug. 20 66
Engineers of Quebec move toward "closed-shop" via legislation (C) Oct. 15 76
Engineers—seniors' pay hikes outpacing juniors' (C) ....Nov. 12 84
Helium—three-way venture marks first commercial production (C)..Aug. 20 53
Potash Co. of America starts restoring Saskatchewan mine (C).....Aug. 20 60
Potash—IMC's chemical treatment unlocks world's largest deposit (C) May 28 70
Potash—IMC's huge mine comes in (N) July 23 76
Potash—IMC's new plant fed by world's largest supply — flowsheet. Bruce Cross ....Nov. 12 *176
Research community to be built near Toronto (C) ....June 11 86
Also, near Montreal (C).....July 23 58
Separation process using porous membrane under pressure may prove revolutionary (C) ....Nov. 12 79
Tar sands—Athabasca rights go to Great Canadian (C)....Oct. 15 71
Tar sands—three-way rights battle continues (C) ....July 9 75
Thorium producer, Rio Tinto Dow, wins big slice of world market (N) Apr. 30 *64
Caprolactam
Caprolactam from either benzene or cyclohexane via new process (C) June 25 60
Mitsubishi balks at final approval of licensing agreement with Snia Viscosa (C) ....Sept. 3 67
Photochemistry reduces cost of caprolactam (chart) (N)....Mar. 5 72
Carbon Black
Carbon black's new shape woos stereo rubbers ....July 9 *100
Continuous process blends rubber, carbon black for masterbatching (C) Sept 17 91
Output slipped in '61 (table) (N) Apr. 16 94
United Carbon furnace improves quality (C) ....July 23 58
Catalysts
Acidic catalysts—insoluble synthetics outdo mineral acids....Oct. 1 62
Alumina catalysts ....Apr. 16 100
Catacarb catalyzed gas scrubbing proc-

ess improves cleanup (chart) (N) Nov. 26 60
Cracking catalyst called Durabead 5 May 28 70
Demet process demetallizes cracking catalysts (C) ..... June 11 83
Hydrogenation catalysts offer high selectivity ..... Sept. 17 116
Metal-poisoned catalysts get antidotes —Met-X and Demet processes. R. J. Bender (chart & table) (N) ..July 23 *66
Petroleum-cracking catalyst — production process streamlined at Davison Chemical—flowsheet ..... Apr. 2 *82
Polymer Corp.'s catalyst stabilization process improves stereo polymers (C) Sept. 17 96
Polypropylene makers ponder Du Pont patent involving common catalysts (C) ..... Sept. 3 72
Radiation—high-level radiation is catalyst for ethyl bromide process (C) Dec. 10, 58 (N) Dec. 24 *40
Rhodium-salt catalyst system for producing trans-polybutadiene (C) Feb. 19 55
Stereospecific catalysis: new dimension in polymerization—report. Eugene Guccione (charts & tables) .... Apr. 2 *93
Stream analyzer spots metals, protects catalyst (C) ..... Oct. 1 35

Cellulose
High-purity cellulose ..... May 14 98
Microcrystalline cellulose, called Avicel (C) ..... Apr. 2 38

Cement
Computer control boosts output, improves product (C) ..... July 9 73
Japanese cement plant will use closed-loop digital computer control (N) Apr. 30-59, (Charts) (N) ..... Oct. 29 *62
Wet process, revamped, boosts cement yield at Wyandotte—flowsheet. Wesley Perry, Jr. ..... Aug. 6 *100
Ceramics—magnesium oxide ceramic —excellent insulator ..... Aug. 20 82

Cesium
Adsorption process eases radioisotope separation (N) ..... Apr. 2 58
Chemalloy and Strategic Materials joint cesium-making venture (C) .. Apr. 16 71

"Chemical Engineering"
Callaham Award—first recipient, Dimitrios Caratzas (N) ..... Mar. 19 *7
Conference on Managing Petroleum and Petrochemical Operations see under **Management**

"Chemical Engineering Cost File"
61. How to estimate level controllers. B. G. Liptak ..... Feb. 5 130
62. Chart gives operating labor for various plant capacities. F. P. O'Connell ..... Feb. 19 *150
63. Flow instruments: cost vs. size. B. G. Liptak ..... Mar. 19 *196
64. Stainless vessels: solid vs. clad. W. G. Clark ..... Apr. 16 188
65. Installed instruments. D. K. Ridley May 14 206
66. Estimating structural-steel supports. M. M. Kirk ..... June 11 208
67. Jacketed equipment. M. M. Kirk July 9 *164
68. Capitalized costs for incremental analysis. G. T. Fisher (table) .. Aug. 6 146
69. Costs of transporting process chemicals. R. H. Scheyer ..... Sept. 3 158
70. Costs correlated for process control panels. B. G. Liptak (chart) ... Oct. 1 *122
71. Simplified technique for estimating centrifugal process pump costs. Sniffen & Serven ..... Nov. 26 146
72. Nomograph gives equipment and plant costs. Winfield & Dryden Dec. 24 100

"Chemical Engineering Refresher"
Adsorption theory guides process design. Coates & Pressburg (charts) Feb. 19 *129
Examine leaching and extraction. Coates & Pressburg (charts) .. Jan. 22 125
Mathematics review. W. N. Gill (charts & tables)
Mathematics provides understanding for new ideas ..... Apr. 30 *109
Mathematics for chemical engineers May 28 121
How to solve some partial differential equations ..... July 9 *145
Mathematics of Bessel and Graetz functions ..... Aug. 6 *125
How to formulate and solve partial differential equations ..... Sept. 3 *131
Laplace transforms provide solutions to partial differential equations Oct. 1 97
How to solve second-order linear partial differential equations ... Oct. 15 189
Rate processes in unit operations. Coates & Pressburg ..... Mar. 19 177
Statistics in chemical engineering. L. B. Andersen (tables)
Statistical methods extend your data Oct. 29 *119
Probability theory provides simple statistical methods ..... Nov. 26 125
How to use statistical inference Dec. 24 83

"Chemical Engineering Reports"
Air pollution regulations. J. E. Yocom (charts) ..... July 23 *103-114
The challenge of higher pressures. F. W. Wilson (charts) .... Oct. 15 *159-174
Chemistry tackles plant maintenance. C. M. Loucks (charts) .... Mar. 5 *103-120
Critical-path scheduling. J. W. Mauchly (charts) ..... Apr. 16 *139-154
Engineering attacks the profit squeeze Jan. 8 *83-98
Fluidization—Design for fluidization. J. F. Frantz (charts)
Pt. 1 Sept. 17 *161-178, Pt. 2 Oct. 1 *89-96, Pt. 3 ..... Oct. 29 *103-110
A guide to crushing and grinding practice. A. L. Stern (tables) Dec. 10 *129-146
Pt 1 Disintegration ..... Dec. 10 130
Pt 2 Equipment ..... Dec. 10 139
Heat technology (charts & tables) June 11 *135-182
Combustion. A. F. Duzy ..... June 11 138
Electricity. K. N. Woollen ... June 11 145
Cryogenics. Dubs & Thompson June 11 152
Refractories. W. L. Wroten .. June 11 158
Insulation. J. M. Barnhart ... June 11 164
Heat exchangers. D. S. Morton June 11 170
Heat transfer. A. S. Foust ... June 11 177
High-vacuum technology and equipment. H. A. Steinherz .... Aug. 20 *117-132
Inventory—semiannual inventory of new plants and facilities Apr. 16 155-166 ..... Oct. 29 111-118
Inventory—semiannual inventory of new processes and technology Jan. 22 131-138
Inventory—13th inventory of new processes and technology ..... Aug. 6 117-124
Liquid-solids blending. J. J. Fischer (charts) ..... Feb. 5 *83-98
Materials of Construction—20th biennial report (charts & tables). Norden & Hughson ..... Nov. 12 *185-232
Corrosion charts: guides to selection. R. K. Swandby ..... Nov. 12 186
Directory of manufacturers .. Nov. 12 202
Inventory of current literature Nov. 12 224
Selecting sensible sampling systems. W. C. Schall (charts & tables) May 14 *157-172
Stereospecific catalysis: new dimension in polymerization. Eugene Guccione (charts & tables) ..... Apr. *93-106

Chemical Industry
Aerojet's new Chemical Products Div. eyes CPI markets (N) ..... Aug. 6 78
Ashland Oil to buy United Carbon (C) Oct. 29 60
AviSun Corp. drops capital S, becomes Avisun (N) ..... Feb. 5 54
Britain's ICI and Courtaulds may merge (C) ..... Jan. 8 35
Merger off (C) ..... Apr. 2 38
Postscript: Courtaulds prospers (N) Dec. 10 82
Capital spending for 1961 analyzed in MCA survey (N) ..... June 11 96
Capital spending for 1962 to hold steady (tables) (N) ..... May 28 78
Capital spending plans steady despite market dip (C) ..... July 23 53
Chemical costs curb free trade, tariff study shows (table) (N) ..... July 9 94
Chemicals prime the pump for oil producers (table) (N) ..... Feb. 19 *68
CPI, facing freer world trade, compares costs (table) (N) ..... Jan. 8 54
CPI to observe "Chemical Progress Week" (N) ..... Apr. 2 46
Cities Service negotiating merger with Tennessee Corp. (C) ..... Dec. 10 60
Columbia Nitrogen Corp. buys Bradley & Baker (C) ..... Nov. 12 86
Computer economics. Eliot & Longmire (tables) ..... Jan. 8 *99
Dow Smith—joint venture of Dow Chemical and A. O. Smith (N) .Jan. 22 78
Engineering attacks the profit squeeze report ..... Jan. 8 *83
FMC buys American Viscose Corp. (C) Dec. 10 55
General Aniline & Film may go on the block in ownership hassle (C) .Aug. 6 60
Germany—West Germany's chemical trade (N) ..... Oct. 1 58
Japanese chemical team to study Western practices (N) ..... Oct. 15 90
Nuclear energy—will it fit the CPI?—AEC survey. R. W. Ritzmann (tables) Sept. 3 117
Overcapacity casts shadow on bright future (N) ..... Feb. 5 *42
Overseas spending keeps moving upward (C) ..... Sept. 17 89
Overseas spending plans for 1963, 1964, (tables) ..... Oct. 29 74
Pigments—new patterns in pigments. Frances Arne (charts & tables) (N) July 9 *82
Red chemicals have big potential in world market (tables) (N) .. Feb. 19 *64
R&D—chemicals lead industry in R&D spending (tables) ..... Nov. 12 94
Salaries of top CPI executives (table) July 9 *150
Second squeeze on profits—implications for the CPI. H. M. Strage (charts & tables) ..... Oct. 15 175
Spending will advance slowly in 1963 (tables) (N) ..... Nov. 26 56
Tariff showdown makes processors choose sides. Frances Arne (N) May 14 *82
U. S. chemicals draw big foreign investment, sales (N) ..... Nov. 26 55

Chemistry
Chemistry tackles plant maintenance—report. C. M. Loucks (charts) .Mar. 5 *103
New trends in chemistry: a roundup. R. B. Norden ..... Jan. 8 105
China—Red chemicals have big potential in world market (tables) (N) .Feb. 19 *64

Chlorination
Fundamental aspects of the chlorination of ores and minerals (QED) .. Nov. 12 338
Stauffer's new tetrachloride plant will use fluid-bed process (C) .... Mar. 19 71

Chlorine
Caustic-chlorine plant features new type electrolytic cells (N) ... June 11 *102
Japanese to pilot evaluation of Chlormetals'. Szechtman cell process (C) Jan. 22 59
Metal anode rouses producers' interest (N) ..... Jan. 22 *68
Szechtman cell process cuts costs at Chlormetals (charts & tables) (N) Mar. 19 90
Choline—organic base for several applications ..... May 28 94
Chromium—Chrome-plating plant plays one waste against another (N) June 11 *98

Clathration see **Separation**

Cleaning
Alkaline cleaner strips rust and paint from steel ..... June 25 82
Chemistry tackles plant maintenance—report. C. M. Loucks (charts) .Mar. 5 *103
Copper brightener cleans in minutes June 11 *112
Lime-scale removal ..... July 23 *148
Potash plant eases clean-out of thickening tanks ..... July 23 *144
Tank vehicles—cleanout units assure pure, fast liquid shipments (N) .Sept. *106

Coal
Coking processes report glowing progress (C) ..... Mar. 5 60
Energy market forecast sees coal outpacing oil and gas (table) (N) Feb. 19 76
G-E will experiment with using atomic radiation for coal gasification (C) May 14 76
G-E will explore production of chemicals, liquid fuels from coal (C) Apr. 16 76
Humic acid extracted from coal (C) Jan. 8-38, (N) ..... Apr. 30 *68
National Steel readies second blast furnace for injection of raw coal (C) Aug. 20 53
Pipeline to supply Eastern utilities clears legislative hurdle (C) .. Mar. 5 55
Research contract spurs hunt for economic fractionation process (C) Sept. 17 96
Research interest begins boiling—four projects (N) ..... July 23 74
Research seeks economic process for converting coal to a gas, liquid and solid (C) ..... June 11 88

Coatings
Anodized finish protects zinc surfaces May 28 92
Anticorrosion coating protects pickling tank ..... Jan. 8 *58
Catalyzed rubber coating fights corrosion ..... Feb. 5 *60
Czech process puts metal coating on plastics (C) ..... June 11 86
Epoxy, appliable on wet surfaces, protects marine structures May 14 211 ..... Nov. 26 *76
Epoxy resin for coating steel pipe cures fast (N) ..... Apr. 16 *92
Foam-up paints offer high-temperature protection ..... Jan. 8 60
Glassed steel resists corrosion. C. M. Knoll (charts) ..... May 28 *150
Japanese paint withstands flame, high heat (C) June 25-55, (C) ..... Sept. 3 *67
Metal coating of colloidal silica sheds grime ..... Apr. 16 *98
Neoprene coating checks cooling-tower decay (N) ..... Sept. 3 *76
Organic coatings resist heat .... May 14 214
Pipe, called In-Ter-Line, has internal plastic coating (C) ..... Apr. 16 71
Plastic coating in fluidized beds—Whirlclad's fusion-bond process. R. K. Devan ..... July 9 *170
Plastic-lined pipe—dry coating processes promise better pipe (C) .Feb. 19 60
Polyester coating ..... Feb. 19 82
Refractory lining resists carbon monoxide ..... July 23 *146
Silicone dielectric compounds provides protective coating ..... Nov. 26 *76
Silicone metal coating, called Ucar, forms thin, pinhole-free film that bars tarnish, corrosion ..... Aug. 6 *82
Silicone-silver conductive coating Aug. 20 *82
Silicone transparent release coatings Aug. 20 82
Strippable protective film called Liqui-Tarp ..... Dec. 10 *88
Stripper for coatings ..... Oct. 29 84
Tunnel—coated tunnels offer liquid-storage bargain (N) ..... May 28 *82
Welded-on stainless overlays combat corrosion. Linnert & Crooks ... Oct. 1 *124
Wool-fiber coating process reduces cloth shrinkage (C) ..... Aug. 6 55
Zinc coating for cold galvanizing Oct. 15 102

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Coke and Coke Products
Coal converted to coke by two new processes (C) ..... Mar. 5 60
Petroleum fluid coke—main fuel of giant steam unit (C) ..... July 9 80

Combustion
Combustion: prime source of process heat—Heat technology report. A. F. Dusy (tables) ..... June 11 *138
Liquid-propellant group focuses on combustion (N) ..... Aug. 6 74
Comminution—New ideas clarify grinding principles. F. C. Bond (charts & tables) ..... Feb. 5 *103

Communication
Meet the press—dealing with newsmen covering emergencies ..... Feb. 5 *126
Microwave relay links computers 11 miles apart (N) ..... Aug. 20 *64
Write right: a memo to engineers. P. L. Garrett ..... Apr. 2 *122

Compressors
Computers can now control compressors (N) ..... Nov. 26 68
Engine-compressor maintainence program boosts on-stream time (N) ..... Feb. 5 *50
Gas compression—compressor calculations 1or nonideal gases. D. M. Church
Pt 1 Thermodynamics of ideal gases Mar. 5 *127
Pt 3 Calculations of nonideal gases Mar. 19 *167
Pt 3 How to pick centrifugal compressors ..... Apr. 2 *117
Jet-engine-compressor team seeks operational status (N) ..... Mar. 19 82

Computers
Analog simulation for optimizing batch-continuous systems. J. K. Munson (charts) ..... July 9 *139
Calculate enthalpy and entropy using pVT data. David Cornell (charts & tables) ..... Mar. 19 *159
California Portland Cement Co. will install a process-control computer in its modernized plant (C) ..... Oct. 29 55
Celanese's new Bay City, Texas, plant will be computer-controlled (C) Jan. 22 61
Cement kiln's closed-loop system pays off (C) ..... July 9 78
Computers can now control compressors (N) ..... Nov. 26 68
Computers come of age—Profit squeeze report ..... Jan. 8 *96
Computer guides design of Ethyl pilot plant (C) ..... Jan. 8 35
Computerized quality control. J. R. Wilson ..... May 28 *140
Digital computer replaces regular controls on distillation columns (C) June 11 81
Digital men eye direct control (N) Nov. 12 102
Dollar incentives for computer control. Eliot & Longmire (tables) ... Jan. 8 *99
Goodrich uses test in COBOL as criterion for computer purchase (C) Feb. 19 57
Hybrid computer called Hydac (C) Oct. 1 37
Japan's Chichibu Cement Co. uses digital computer to tighten kiln control (charts) (N) ..... Oct. 29 *62
Japanese cement plant designed and built around computer system (N) Apr. 30 59
Magnetic index tape will speed computer patent searches (C) .... Mar. 5 60
Microwave relay links computers 11 miles apart (N) ..... Aug. 20 *64
Off-line computers aid oil refinery scheduling (table) (N) ..... June 11 102
Oil refiner bares computer control details (N) ..... June 25 *72
Paper plant digester process to get computer control (C) ..... June 25 58
Papermakers' problem: can computers help their business? (C) ..... May 28 65
Programming system, called CLEAR, for process-control computers (N) Apr. 2 58
Selecting a computer? — New service supplies consumer data (N) .. Sept. 3 88
Soap-making controlled by computer in automated English plant—flowsheet ..... Oct. 15 *152
Trademark search—new computer-based service (N) ..... Dec. 10 72
TRW computer installed at Petroleum Chemicals' ethylene unit (C) . Apr. 16 73
Westinghouse SOLOMON radically boosts digital speed (C) ..... July 9 78

Concentration
Foam spray-drying—economical method for concentrating milk (C) ... Oct. 29 53
Radio-frequency generator produces high-solids orange juice concentrate (C) ..... Apr. 16 73

Concrete
Cooling tower at Monsanto to be built of concrete (N) ..... Sept. 17 *110
Soil stabilizer repairs or resurfaces concrete ..... Sept. 3 92

Construction
Builders rely on Ch. E. help—remarks by A. I. Tenzer (QED) ..... Dec. 10 202
Desalting plants—OSW speeds up building schedule at Wrightsville Beach, N. C. (N) ..... Dec. 24 38
Designing a high-pressure laboratory. Stenberg & Coffey (charts) ... Nov. 26 *115
Drug plant moves into pillbox (N) Nov. 12 *100
Helicopter saves three weeks, $10,000 (N) ..... Aug. 6 *76
Inspecting the design for missing horseshoe nails. W. H. Richardson. Apr. 30 126
Italian engineering contractor opens New York office (C) ..... Oct. 29 55
"Packaged" plants spark overseas buildups (N) ..... Dec. 10 74
Pane relievers vent explosive popoffs at Parke, Davis (N) ..... Jan. 22 *70
Plants—contractor's eight tips toward a better plant. J. P. Wiseman June 25 105
Plants—dealing with an outside designer. S. B. Hettig, Jr. ..... June 25 *101
Plants—profitable plants: design, construction, operation. Robert Frumerman ..... Apr. 16 133
Plastics' key to building market: better fire retardance. Frances Arne (N) ..... June 25 *62
Plastic windows accepted for New York City schools (C) ..... Nov. 26 47
PVC spurt coming as construction swings to PVC panels, pipe (N) Aug. 20 *62
Prefab buildings, components call for more plastics (table) (N) .... Sept. 3 *78
Refinery for Libya built on concrete barge in Belgium (C) Mar. 19-71, (C) Oct. 15-71, (N) ..... Dec. 10 *76
Tedlar, fluorocarbon film, bids for construction role ..... Dec. 10 *86

Containers
Blow molded bottles win solid footing for linear polyethylene (N) .. Apr. 16 *82
Plastics in greater variety will win more of bottle and container markets (C) ..... Dec. 10 55
Continuous processing — Sampling systems for on-line analyzers—report. W. C. Schall (charts & tables) May 14 *157

Controls
Adjustable restriction accurately controls flow. W. H. Gries (P. N.) Oct. 1 *114
Computers see **Computers**
Control panels—costs correlated for process control panels—C. E. Cost File. B. G Liptak (chart) ... Oct. 1 *122
Control-valve damping reduces fluctuations. W. T. Klapper (chart) (P. N.) Aug. 6 138
Controls boost cost reduction—Profit squeeze report ..... Jan. 8 *93
Controls for non-linear processes. F. G. Shinskey (charts) ..... Mar. 19 *155
Monsanto's new Chocolate Bayou, Tex., plant will not be computer-controlled (C) ..... Dec. 24 23
Sampling systems for on-line analyzers —report. W. C. Schall (charts & tables) ..... May 14 *157
Semiautomatic level control for wet pressure gas meters. W. H. Gries (P. N.) ..... Dec. 24 97
Sensor optimizes pumping rate for oil cargoes (N) ..... Apr. 16 *88
Steam-trap level controller foils wintry blasts. Martin Kladko (P. N.) June 11 *202
Conveyors—Air leaks can stop conveyors. K. H. Parekh (P. N.) ..... May 14 200
Coolant cleanup: key support for new nuclear plant—flowsheet. M. D. Robbins ..... Sept. 3 *110
Cooling—For flexibility, the air-evaporative cooler. L. S. Harris (charts) Dec. 24 *77

Cooling Towers
Concrete, plastics replace wood in new towers (N) ..... Sept. 17 *110
Instruments study cooling-tower diseases (N) ..... Apr. 2 *58
Neoprene coating checks decay (N) Sept. 3 *76
Rout rot in water-cooling towers (chart) ..... Feb. 19 *154

Copper
Alkaline leaching to extract copper from low-grade ores (C) ..... Aug. 6 57
Beryllium-copper powder yields high-strength parts ..... Aug. 6 84
Cone precipitator recovers copper from mine waters (C) ..... Nov. 12 84
Corrosion of copper and its alloys. A. W. Tracy (tables)
How copper corrodes ..... Jan. 8 *130
Copper for corrosion-resistant equipment ..... Jan. 22 *152
Research programs seek new uses for copper (N) ..... Oct. 15 94

Corrosion
Anticorrosion coating protects pickling tank ..... Jan. 8 *58
Chemistry tackles plant maintenance—report. C. M. Loucks (charts) Mar. 5 *103
Coating, appliable on wet surfaces, protects marine structures May 14-211, Nov. 26 *76
Cooling towers—rout rot in cooling towers (chart) ..... Feb. 19 *154
Copper—corrosion of copper alloys. A. W. Tracy (table) ..... Jan. 8 *130
Copper for corrosion-resistant equipment. A. W. Tracy (table) ... Jan. 22 *152
Corrosion inhibitor checklist (table). Maxey Brooke ..... Feb. 5 134
Corrosion of film-forming metals. J. E. Draley Pt. 1 Nov. 12 *256, Pt. 2 Nov. 26 *152
Glassed steel—fire-bonded glass helps steel resist corrosion. C. M. Knoll (charts) ..... May 28 *150
How hydrogen attacks steel (chart) Mar. 5 *142
Lime-scale removal — inhibitor bars damage to pipes ..... July 23 *148
Lower-permeability graphite can take corrosives. Revilock & Stambaugh (tables) ..... June 25 *148
Materials of construction—20th biennial report—Corrosion charts: guides to materials selection. R. K. Swandby (charts & tables) ... Nov. 12 186
Motors protected by encapsulation method using epoxy and stainless steel ..... Sept. 17 *212
Plastic coating in fluidized beds. R. K. Levan ..... July 9 *170
Plastic equipment solves problems at Monsanto ..... Mar. 19 *200
Plastic tape protects pipe against corrosive attack ..... May 14 *210
Refractory lining resists monoxide July 23 *146
Refractory metals for high-temp corrosion problems. Jack Chelius (table) Dec. 10 178
Scale control techniques permit old method to produce fresh water from the sea—flowsheet. Eugene Guccione Nov. 26 *102
Scale prevention will get test at Roswell, N. M., fresh-water plant (chart) (N) ..... Jan. 22 74
Silicone coating for metals, called Ucar, prevents tarnish, corrosion ... Aug. 6 *82
Stannate treatment halts corrosion of metallic couples ..... Feb. 5 62
Steel corrosion inhibitors—Glasgow study uncovers new compounds (table) ..... Sept. 17 *208
Testing techniques help predict in-plant corrosion. R. V. Hughson .... Apr. 30 *132
Titanium climbing for CPI corrosive applications (table) ..... Apr. 16 *194
Welded-on stainless overlays combat corrosion in carbon steel vessels. Linnert & Crooks ..... Oct. 1 *124

Costs
CPI, facing freer world trade, compares costs (table) (N) ..... Jan. 8 54
Computer control offers dollar incentives. Eliot & Longmire (tables) Jan. 8 *99
Critical-path scheduling—report. J. W. Mauchly (charts) ..... Apr. 16 *139
Decision-making—symposium on new techniques (charts) ..... June 25 *107
Desalting—OSW discloses desalting outlays (N) ..... Dec. 10 76
Engineering attacks the profit squeeze report ..... Jan. 8 *83
How "hidden" factors affect equipment costs (tables) ..... Apr. 16 190
Operations engineering can conserve your production dollars. J. H. Riddle June 25 *140
Optimize solute-recovery operations. J. F. Kuong ..... Mar. 19 *173
Painting—Economics of industrial painting. R. K. Swandby (charts & tables)
Pt. 1 How to reduce maintenance painting costs ..... Apr. 30 115
Pt. 2 How to analyze costs of painting a new plant ..... May 28 *115
Pt. 3 Getting your money's worth from paint testing ..... June 11 191
Piping installation—an accurate way to estimate costs. C. J. Keating (tables) June 25 125
Plant construction projects
Dealing with an outside designer. S. B. Hettig, Jr. ..... June 25 *101
Eight contractor tips toward a better plant. J. P. Wiseman ..... June 25 105
Plants—Evaluating the proposed plant. Robert Frumerman (chart & tables) Oct. 1 101
Plants—Profitable plants: design, construction, operation. Robert Frumerman ..... Apr. 16 133
Process simulation can secure improved operating performance at less cost. Armstrong & Olson (charts) .. Sept. 3 *135
Second squeeze on CPI profits. H. M. Strage (charts & tables) ..... Oct. 15 175
Uncovering your competitor's costs—four panelists' suggestions .... Nov. 26 *109
Tapping public sources. J. C. Cowan Nov. 26 110
The value of formal contacts. T. E. Hedge ..... Nov. 26 110
Make use of informal contacts. R. T. Cline ..... Nov. 26 112
Applying the deductive method. Gustav Enyedy, Jr. ..... Nov. 26 113
Cresols—Northwest Petrochemical's cresols process prompts new plant in Indiana (chart) (N) ..... Aug. 20 *66

Crushing
Guide to crushing and grinding practice—report. A. L. Stern (tables) Dec. 10 *129
Pt. 1 Disintegration ..... Dec. 10 130
Pt. 2 Equipment ..... Dec. 10 139
New ideas clarify grinding principles. F. C. Bond (charts & tables) .. Feb. 5 *103

Cryogenics
Cash in cryogenics?—Profit squeeze report ..... Jan. 8 *92
Cryogenics: lower temperatures at lower costs—heat technology report. Dubs & Thompson (charts & tables) June 11 153

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Nickel steel accepted by ASME for cryogenic service (C).....May 14 76
9% nickel steel holds helium at —320 F. J. D. Heffernan (charts & table) Oct. 15 *210
Crystallization—Desalting via Struthers-Umano freeze route set for OSW program (N) .....Dec. 10 78
Cyclohexane
Air oxidation process for making adipic acid (C) .....June 11 86
Texaco plant to be built in Trinidad will use high-purity process (C) June 11 83
Czechoslovakia—Isoprene process details (N) .....July 9 94

D

Defense
Industry leaders urged to build fallout shelters (N) .....Jan. 8 44
Nuclear attack and industrial survival Jan. 8 *136-A
Design
Adsorption theory guides process design—CE Refresher. Coates & Pressburg (charts) .....Feb. 19 *129
Boosting separator efficiency. Walter Coopey .....Feb. 5 *118
Bubble-cap pressure drop. Francis Van Hecke (charts & tables)....Nov. 12 233
Butyl rubber plant design shaped by 400% gain (charts) (N).....June 11 *90
Computer buyer's test puts pressure on computer makers (C).....Feb. 19 57
Computer guides design of pilot plant (C) .....Jan. 8 33
Data-assembling program for designers gets API grant (N) .....June 25 *66
Dealing with an outside designer. S. B. Hettig, Jr. .....June 25 *101
Design charts. E. J. Gibbons. See under **Plant Notebook.**
Designing a high-pressure laboratory. Stenberg & Coffey. (charts)..Nov. 26 *115
Distillation columns—homemade triangles speed design. Martin Kladko (P.N.) .....Aug. 6 *140
Distillation—improving McCabe-Thiele diagrams. R. Q. Alleva.....Aug. 6 *111
Distillation tray design lowers pressure drop (N).....Mar. 19 *88
Filtration—practical filtration formulas. J. C. Sharbaugh (charts & tables) Dec. 10 *153
Fluidization—design for fluidization—report. J. F. Frantz (charts) Pt 1 Sept 17 *161, Pt 2 Oct. 1 *89, Pt 3 Oct. 29 *103
Glassed steel equipment—how to design, install, maintain it. C. M. Knoll (tables). .....June 11 *214
Graphical method simplifies heat-exchanger calculations. Mickley & Korchak (charts).
Determining performance ....Oct. 15 *181
Finding optimum economic size Nov 12 *239
Heat transfer—apply theory to design of solids heat transfer devices. A. D. Holt (charts & tables) Jan.8 *107
Inspecting the design for missing horseshoe nails. W. H. Richardson..Apr. 30 126
Japanese cement plant designed around computer system. (N) Apr. 30-59. (Charts) (N). .....Oct. 29 *62
Lime kiln—unique burner design boosts kiln capacity (chart) (N)....Sept. 3 *74
New design recoups heat in nitric acid plants—flowsheets. T. P. Forbath Dec. 24 64
Optimization. A. H. Boas (charts).
Pt 1 What optimization is all about Dec. 10 *147
Optimization—how to solve optimization problems. Lewis Iscol...Feb. 19 *107
Plant design speed-up—Profit squeeze report .....Jan 8 89
Probability, downtime and doomed designs. E. J. Gibbons (chart & table) Nov. 12 250
Profitable plants: design, construction, operation. Robert Frumerman..... Apr. 16 133
Pressure relief—emergency venting for tanks and reactors. Benjamin Block (charts & tables) .....Jan 22 *111
Process redesign may cut heavy-water cost 40% (N) .....Feb. 19 78
Process simulation can improve plant performance. Armstrong & Olson (charts) .....Sept. 3 *135
Sampling systems for on-line analyzers —report. W. C. Schall (charts & tables) .....May 14 *157
Scale-up series. F. A. Holland (charts & tables)
Liquid-mixing systems .....Sept. 17 179
Heat exchange systems.....Nov. 26 119
Fluid-flow systems .....Dec. 24 71
Ships designed to carry chemical cargoes across oceans (C) .....Nov. 26 47
Detergents
Absorption system from Vacumite uses activated carbon to remove syndets from laundry water (C).....Mar. 19 73
Alkali-stable surfactants .....Oct. 29 82
ABS detergents removed from laundry waste water by new Johns-Manville unit (C) Oct. 15 78, (C) ....Nov. 12 84
ABS pollution may yield to new foaming and recycle process from California Research (C).....Dec. 10 53
ABS pollution—two new methods for degrading ABS (C) .....Oct. 29 58
Biodegradable alkyl benzene sulfonate developed in England (C) ...Sept. 3 65
Biodegradable detergents market gets two new contenders (C) ....Sept. 17 89
Chemithon's new process tames sulfur trioxide sulfonation (chart) (N).... Mar. 5 70
Chemithon offers package plant using SO_3 as sulfonating agent (C)..Jan. 3 33
Foam fractionation removes detergents from sewage water .....Apr. 30 *62
Foam problems fast coming to a head —shift to biodegradable stock coming? (N) .....Oct. 15 *84
Water pollution research—findings add new twist (C) .....Jan. 8 35
Diamonds—G-E converts graphite to diamonds without a catalyst (N)..Oct. 29 *76
Diammonium phosphate—IMC introduces refinements on TVA process—flowsheet Mar. 19 *148
Dimethylamine—Belgian plant's new process boosts yield (chart) (N).Oct. 29 *70
Diphenyl oxide—Doryl, Westinghouse new polymer, debuts .....Oct. 29 *80
Disaster control—Gulf Coast victims bolster weather defenses (N)..June 25 *74
Disk—Spray disk disperses slugs from injector pump. A. W. Billitzer (P.N.) Jan. 22 *146
Dispersion—Du Pont process makes metals that withstand higher temperatures (C) .....July 9 73
Distillation
Batch distillation—generalized equation speeds design. H. L. Glotzer (P.N.) May 14 *202
Chart finds flow parameter for bubble-cap. column. H. M. Jones (P.N.) Jan. 22 148
Controlled-cycling distillation—one-way flow improves results (C) .....Oct. 1 35
Czech tray design lowers pressure drop (N) .....Mar. 19 *88
Desalting plant at Roswell, N. M. will use vapor compression distillation (chart) (N) .....Jan. 22 74
Desalting water by multistage flash distillation at Point Loma, Calif.—flowsheet. Eugene Guccione .Dec. 10 *122
Horizontal tower gets commercial tryout on tall-oil unit (C).....June 25 58
Improving McCabe-Thiele diagrams. R. Q. Alleva .....Aug. 6 *111
Liquid divider for batch distillation columns. W. J. Kelley (P.N.). Sept. 3 *154
Temperature-compensated distillation column. Oliver & Sprague (P.N.) Sept. 3 *150
Dodecylbenzene unit feeds chloromethylating offshoot—flowsheet .....May 14 *150
Dodecylbenzyl chloride production at Conoco—flowsheet .....May 14 *150
Drives—Hydrostatic drives can cut power costs. Lane & Holzbock .....Apr. 2 *111
Drugs
Drugs face stiffer regulations (N) Nov. 12 98
Merck experiences turnabout of drug theft case (C).....Dec. 24 28
Merck subsidiary in Mexico builds circular plant (N) .....Nov. 12 *109
Drying
Dryer's internal recycle prevents caking (N) .....Nov. 26 *64
Fluid-bed processing for drying coal, plastics, noncombustibles. R. J. Priestley .....July 9 *127
Foam spray-drying proves economical for concentrating milk (C)...Oct. 29 53
Dust and Fume Handling
Air pollution regulations—report. J. E. Yocom (charts) .....July 23 *103
Air pollution battles on many fronts (C) .....June 25 60
Auto fumes—air monitors begin nationwide study (N) .....Feb. 5 *52
Auto fumes—fluorescent forest aids smog study (N).....Sept. 7 *112
Boosting separator efficiency. Walter Coopey.....Feb. 5 *118
Continuous absorption removes acid fumes. Allen & Cooper (P. N.) Nov. 26 *144
Smog—broadening assault on smog ends near-monopoly of exhaust devices (C) Dec. 10 53
Smog—California clamps down on autocrankcase fumes (N).....May 28 86
Dyes
Polypropylene dye for unmodified fiber from Japan (C) .....Apr. 16 76
Polypropylene fiber dyes commercially available soon (C).....June 25 55

E

Economics
Alaska dam would spawn power-based industries (tables) (map) (N).Oct. 1 44
Bigness and economic progress (QED) Dec. 10 210
Capital spending plans steady despite market dip (C) .....July 23 53
Chemical costs curb free trade (table) (N) .....July 9 94
Chemicals lead industry in R&D spending (tables) .....Nov. 12 94
Chemical spending for 1961 (N) June 11 96
Chemical spending for 1962 to hold steady (tables) (N) .....May 28 78
Computer economics. Eliot & Longmire (tables) .....Jan. 8 *99
Contract processing wins latest polyethylene marketer (C).....Apr. 16 73
Engineering attacks the profit squeeze-report .....Jan 8 *83
Evaluating the proposed plant. Robert Frumerman (chart & tables) ..Oct. 1 101
Fire retardants: plastics' entree to big building market. Frances Arne (N) June 25 *62
Foreign investment in U. S. industry; sales of foreign-made U. S. goods (N) (table) .....Nov. 26 55
Germany—West German chemical investment sets record (N).....Oct. 15 82
Germany—West Germany's chemical trade (N) .....Oct. 1 58
Industry spending: slow advance seen for 1963 (tables) (N) .....Nov. 26 56
Long-range planning — management planning for growth. Chaplin Tyler July 23 *123
Lube markets doomed by no-care cars? (table) .....Apr. 30 *60
McGraw-Hill's "Pulsebeat"—forecast for 1962 (N) .....Feb. 5 *42
Nuclear energy—will it fit the CPI? R. W. Ritzmann (tables) ....Sept. 3 117
Overseas CPI spending keeps moving upward (C) .....Sept. 17 89
Overseas industrial spending starts tapering off (tables) (N) ....Oct. 29 74
Petrochemicals—long-range planning in markets and technology. Edward Tarnell .....May 28 127
Plastics sees biggest potential market in prefab building trend (N)..Sept. 3 *78
Profitable plants: design, construction, operation. Robert Frumerman Apr. 16 133
Red chemicals have big potential in world market (N) (tables) ..Feb. 19 *64
Red petroleum surges in world markets (N) .....Dec. 24 *30
R&D—Selecting R & D projects for profit. Solomon Disman .....Dec. 24 87
Rubber leads CPI in 1962 capital spending plans (C) .....Apr. 20 56
Second squeeze on profits—implications for the CPI. H. M. Strage (charts & tables) .....Oct. 15 175
Tariff showdown makes processors choose sides. Frances Arne (N) May 14 *82
Terpine process cools erratic menthol supply (N) .....Apr. 16 *80
Thorium from Canada wins big slice of market (N) .....Apr. 20 *64
Titanium dioxide producers rely on technology in sharper intra-industry battle (chart & table) (N) ..July 23 62
Vertical integration—linear polyethylene grows in polyolefins' trend (N) Apr. 16 *82
What's ahead for business? McGraw-Hill's Dept. of Economics forecast (N) .....Oct. 15-92, Nov. 12 90
Editorials
An anniversary tribute .....Sept. 3 7
The challenge of free trade ...May 14 7
The challenge of life sciences .June 25 7
The challenge of water renovation June 11 7
Coming your way in '63: two new indexes .....Dec. 24 7
Let's not underestimate the power of women .....Oct. 1 7
Operation survival .....Jan. 8 7
"To serve or to be served?" ....Jan. 22 7
Training engineers for management Apr. 30 7
What do you mean, "engineer shortage"? .....Apr. 16 7
Education
Engineering degrees show bigger drop than expected (C) .....Mar. 5 58
Engineering enrollments down again this year (C).....Dec. 10 60
Engineers getting scarce? R. A. Labine (charts & tables) .....Sept. 3 *144
Enrollment of engineering freshmen for 1961 .....Jan. 8 120
Humanities: knock them down? May 28 138
Our teachers don't teach creativity. C. M. Loucks .....Apr. 16 *172
Overseas training: valuable aid to engineer education. Carole Alpert..Aug. 6 *172
Package plan for training engineering technicians (C) .....Aug. 6 57
Professors get one-day look at industry (N) .....May 14 94
Programmed instruction—new way to learn new things .....Mar. 19 *182
Shale oil plant in Colorado may be used for graduate training (C) Nov. 26 50
Soviet engineering education has weaknesses .....Mar. 5 *132
Universities and the oil companies (QED) .....Dec. 10 207
Elastomers—Elastomer features no-friction surface .....Dec. 10 88
Electricity
Alaska dam—Rampart Project proposal would spawn power-based industries (tables) (map) (N) .....Oct. 1 44
AEC high-level report gives outlook for nuclear-derived power (N)...Dec. 24 36
AEC starts its big-power bid (N) Oct. 1 56
Biochemical fuel cell promises useful future (N) .....Apr. 2 54
Bottled generator: 10 watts for 10 years without refueling (N)..Mar. 19 *82

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Electrical energy: versatile heat source—Heat technology report. K. N. Woollen (charts & tables) June 11 *145
Electrodialysis for desalting water gets tryout at OSW plant—flowsheet May 28 *104
Electrohydrodynamics—power generating method at G-E (C).....Jan. 8 40
Fuel cell gets key role in coming space program (N) .....June 11 *100
Fuel cell—hydrogen-oxygen fuel cell for space craft (N) .....Apr. 16 86
Fuel cell—molten-electrolyte fuel cell may aid space program (C)...Oct. 1 42
Jet engine noise may be converted into electric power (C).....May 28 70
Microwave relay links computers 11 miles apart (N) .....Aug. 20 *64
Nuclear-derived electric power may be competitive (N) .....Apr. 30 70
Thermoelectric elements tested with simple device. S. H. Teller (P.N.) June 11 *204
Thermoelectric ice maker freezes hexagonal cubes (N) .....Mar. 5 76

Electrolysis
Caustic-chlorine plant uses new type of electrolytic cells (N).....June 11 *102
Chlorine producers view metal anode with interest (N) .....Jan. 22 *68
Szechtman electrolytic cell cuts chlorine costs (C) Jan. 22-59, (Charts & tables) (N) .....Mar. 19 90
Encapsulation—stainless steel and epoxy protect motors .....Sept. 17 *212

Energy
Heat technology report see **Heat**
Market forecast, 1960-1980, sees coal outpacing oil and gas (table) (N) Feb. 19 76
Will nuclear energy fit the CPI?—AEC survey. R. W. Ritzmann (tables) Sept. 3 117

Engineering
Air pollution regulations and their affect on engineering decisions—report. J. E. Yocom (charts) .....July 23 *102
Controls for non-linear processes. F. G. Shinskey (charts) .....Mar. 19 155
Engineering attacks the profit squeeze—report .....Jan. 8 *83
Engineering in the university (QED) Nov. 12 341
Engineering vs. U. S. problems—EJC report hits shortcomings ....July 9 154
Higher pressures offer challenge—report. F. W. Wilson (charts) .Oct. 15 *159
High-vacuum technology and equipment — report. H. A. Steinherz Aug. 20 *117
Italian engineering contractor opens New York office (C) .....Oct. 29 55
Optimization. A. H. Boas (charts)
Pt. 1. What optimization is all about Dec. 10 *147
Operations engineering can save production dollars. J. H. Riddle.June 25 *140
Optimization—how to solve optimization problems. Lewis Iscol...Feb. 19 *107
Process simulation can improve plant performance. Armstrong & Olson (charts) .....Sept. 3 *135
Refreshers can help you find answers Mar. 19 *178
Sampling systems for on-line analyzers —report. W. C. Schall (charts & tables) .....May 14 *157
Scale-up series. F. A. Holland (charts & tables)
Liquid-mixing systems .....Sept. 17 *179
Heat exchange systems.....Nov. 26 119
Fluid-flow systems .....Dec. 24 71
Systematic analysis simplifies problem solving. Wales & Schweitzer.Mar. 19 *165

Engineers
AIChE panel tones down cries of engineer shortage .....Feb. 5 115
Better date for designers—aim of new API program (N) .....June 20 *66
Canadian engineers move toward "closed-shop" via legislation (C) Oct. 15 76
ChE's—10-year shortage predicted by EJC study (C) .....Aug. 6 55
Collective bargaining—new efforts may be made to organize engineers (C) Feb. 19 62
Collective bargaining—three moves mark renewed effort to unionize engineers .....Mar. 19 186
Creative talent—how to spot it. Jenness Keene .....June 5 *134
Don't lose a patent by premature use. A. W. Gray .....Jan. 8 *117
Drop in engineering degrees bigger than expected (C) .....Mar. 5 58
Engineer wins case against firm in know-how fight .....May 28 *136
Engineers getting scarce?—outlook to 1971. R. A. Labine (charts & tables) Sept. 3 *144
EJC plans indexing extension (N) Mar. 5 68
EJC report hits inattention to nation's problems .....July 9 154
EJC survey finds critical shortage of technicians .....June 25 138
Enrollment figures for 1961 from EJC's Manpower Commission .....Jan. 8 120
Enrollments decline again this year (C) .....Dec. 10 60
Executive jobs burgeon in '62.. Jan. 8 120
Good ideas need selling! Herbert Popper .....July 23 *130
He's looking for engineer-managers—interview with Paul H. Kiernan Oct. 1 *108
How to motivate engineers. J. E. Hughes .....Aug. 20 148
Humanities: Knock them down? May 28 138
Information—How to get information from Washington. R. D. Stevens Dec. 24 92
Jobs for ChE's—more applicants than jobs, government finds (tables) May 14 196
Make the most of engineering talent. D. J. Cestoni .....May 28 131
Measuring engineering efficiency—the PACE method .....Dec. 24 91
A Negro engineer's problems. R. A. Labine .....Dec. 10 *164
Our teachers don't teach creativity. C. M. Loucks.....Apr. 16 *172
Overseas training: valuable aid to engineer education. Carole Alpert.Aug. 6 *132
Package plan for training technicians (C) .....Aug. 6 57
Pick any chemical engineer's job—career information. F. P. O'Connell Feb. 19 *134
Profit-sharing—does it pay off? V. Bashian .....Nov. 26 *134
Programmed instruction—new way to learn new things .....Mar. 19 *182
Recruiting—would this ad attract you? Aug. 20 *146
Retirement—NICB figures on compulsory retirement policies ..Apr. 30 124
Salaries—BLS survey compares 1961, 1962 salaries (C) .....Nov. 26 45
Salaries—BLS yardstick 1960-61—how does your pay stack up? (chart & table) .....Jan. 22 140
Salaries—Canada's senior engineers' pay hikes outpacing juniors' (C) Nov. 12 84
Salaries for new engineers....Apr. 30 124
Salaries—limits set on most merit pay Jan. 8 120
Salaries—"merit factor", new way to measure salary progress (chart) Aug. 6 *136
Salaries—starting pay: higher still Aug. 6 136
Salaries—starting pay still rising June 25 138
Salary ceiling raised—top CPI executives' compensation (table)....July 9 *150
Sharpen your interviewing skill. J. W. Gilmartin .....Sept. 17 *194
Soviet engineers' education, employment —cold light spots flaws.....Mar. 5 *132
Soviet engineers get specialized training, enjoy prestige (C).....Feb. 5 38
Sperry Gyroscope engineers return after brief walkout .....Apr. 30 124
Staffing, organizing, maintaining in-plant technical departments. J. M. Leathers (chart) .....May 14 185
Standards for engineering-management relations adopted by N. Y PE's (C) .....July 9 73
Suffering from executmania? L. Barton .....Oct. 15 *196
Trade secrets—Are you free to change jobs? A. W. Gray.....Oct. 29 *126
The universal problem (Peace) (QED) Dec. 10 202
Unnecessary work: are you guilty? W. H. Richardson .....Jan. 8 *122
Who owns your knowledge? (C) Dec. 24 21
Will your crew make or break you? W. H. Richardson .....Aug. 20 *152
Write right: memo to engineers. P. L. Garrett .....Apr. 2 *122
Your next job change: time to think. G. L. Beiswinger .....Apr. 30 121

Engines
Auto engines—modified design indicates exhaust fumes can be reduced (C) Dec. 10 53
Jet-engine-compressor team seeks operational status (N).....Mar. 19 82
Rocket engine successfully uses liquid hydrogen (N) .....Nov. 12 90
Rocket—thrust-control system enhances performance of liquid rocket engine (C) .....Nov. 26 45

Equipment
Air-evaporative cooler offers flexibility. L. S. Harris (charts).....Dec. 24 *77
Bolt torques and gaskets for glassed-steel equipment. B. G. Staples (charts & tables) .....Sept. 17 *200
CE Cost File 67—How much for jacketed equipment? M. M. Kirk July 9 164
CE Cost File 72—Nomograph gives equipment and plant costs. Winfield & Dryden .....Dec. 24 100
Chemicals battle equipment fouling—Chemistry in maintenance report.. C. M. Loucks (charts) .....Mar. 5 103
Copper for corrosion-resistant equipment. A. W. Tracy (table).....Jan. 22 *152
Costs recover from downward dip—Marshall & Stevens annual indexes of comparative equipment costs, 1913-1961 (charts & table) .....Mar. 5 125
Crushing and grinding guide—report. A. L. Stern .....Dec. 10 139
Dryer's internal recycle prevents caking (N) .....Nov. 26 *64
Electrical equipment — money-saving maintenance methods. J. R. Autenreith (chart) .....Apr. 2 *128
Extractor selection aided by rating chart. D. B. Todd (P.N.).....July 9 156
Gaskets—Getting the most out of gaskets. E. H. Stubenrauch (tables) Sept. 3 *123
Gaskets—Select and install gaskets effectively. J. J. Whalen (tables) Oct. 1 *83
Glassed-steel equipment—how to design, install, maintain it. C. M. Knoll (tables) .....June 11 *214
Graphite heat exchangers. S. H. Friedman (charts & tables) .....July 9 *133
Heat exchanger producers know hard times (C) .....Mar. 19 73
High-pressure equipment—High pressure report. F. W. Wilson...Oct. 15 *160
High-vacuum technology and equipment—report. H. A. Steinherz Aug. 20 *117
How "hidden" factors affect equipment costs (tables) .....Apr. 16 190
How to pick centrifugal gas compressors. D. M. Church .....Apr. 2 *117
Plastic equipment in a processing plant .....Mar. 19 *200
Pumps—canned pumps solve process problems. I. J. Niemkiewicz (charts) Feb. 19 117
Solids heat transfer equipment—apply theory to design. A. D. Holt (charts & tables) .....Jan. 8 *107
Steel price "increase" points up equipment makers' profit squeeze (C) May 14 76
Thermosyphon reboiler of glass, laboratory-size. H. A. Suter (P.N.) June 11 *204

Equipment News
Accelerator .....Aug. 20 192
Activator, bin, overcomes flow problems .....June 25 *86
Actuator, diaphragm .....Apr. 16 *231
Actuator, motor .....May 14 *249
Actuator, rotary .....May 14 *262
Actuator, valve .....Dec. 10 222
Afterdryer, air .....Feb. 5 *168
Air cooler boosts compressor efficiency Feb. 19 *88
Air mover .....June 11 *268
Analytical system .....Nov. 26 *82
Analyzers....July 9 *191, July 23 *86, Oct. 1 *72, Dec. 10 *226
Analyzer, air oxidation.....Dec. 10 *225
Analyzer, automatic .....Apr. 16 233
Analyzers, colorimetric ...Apr. 16 108, 229
Analyzer, gas .....Oct. 29 *90
Analyzers, moisture.....Apr. 16 *106, Aug. 6 *92, Dec. 10 *96
Analyzer, particle size.....June 11 *278
Analyzer, photometric .....June 11 *276
Analyzer, photometric stream, for sampling .....Sept. 3 *98
Analyzer, thermal .....Nov. 26 *80
Atomizer, oil, can feed remotely located burner .....May 28 *96
Bin-tumbler converts bins into blenders .....Feb. 5 *66
Blender, conical .....Mar. 19 *227
Blender, liquid-solids .....Feb. 5 *70
Blender, plastics .....Feb. 19 *189
Blender, portable .....June 25 *88
Blender—V-blenders joined to make continuous unit .....Jan. 22 *84
Blowers..... ....Oct 1 149, Dec. 10 *228
Blower-exhauster .....Oct. 15 *246
Blower—turbo-blower .....Oct. 1 *145
Blow-molding machine .....Dec. 10 *92
Breather, dehumidifying .....Dec. 24 *56
Bulk loading spout.....Mar. 19 *231
Calculator, portable .....Jan. 8 *66
Calibration instrument .....Aug. 20 *185
Capacitance probe .....May 14 106
Carbon .....Oct. 15 *251
Centrifuge.....Oct. 1 *70, Oct. 15 *108
Centrifuge continuously separates three phases .....July 9 *106
Chromatograph .....Sept. 3 *193
Chromatographs, gas.....May 14 242, June 11 *255, June 25 *90
Chromatograph, process .....Mar. 19 *106
Clamp .....Sept. 3 *191
Classifier, pneumatic .....Jan. 8 *66
Coder, color .....Oct. 15 *104
Collectors, dust....Mar. 19 *108, Apr. 16, 228, June 25 *169, Sept. 3 *185
Collector, dust, operates on low-pressure steam .....Aug. 6 *88
Collector, fumes and mist.....Feb. 19 *90
Compressor .....Oct. 15 *250
Compressor cylinder .....June 11 *262
Compressor, hand .....Aug. 20 *190
Compressor, vertical nonlubricated July 23 *90
Compressor, piston .....Nov. 26 *173
Computer .....July 23 86
Computer center, mobile.....Aug. 20 188
Computer, compact .....Feb. 5 *68
Computers, control..May 14 240, Nov. 26 *82
Computer, hybrid .....June 11 *261
Computer, pneumatic .....Jan. 22 *178
Conditioner, fly-ash .....June 25 *173
Conditioner, materials .....Jan. 22 180
Conduit, rigid PVC.....Aug. 20 *86
Cone, rubber .....May 28 *167
Connector, flexible .....Oct. 29 *158
Connector, tubing .....Jan. 8 *151
Consistency instrument .....July 9 *193
Contactor, vapor-liquid .....Nov. 12 *300
Container, collapsible .....June 11 114
Container, fiber-glass .....Aug. 20 *88
Control system, pH.....Mar. 5 *88
Controller, condensation .....Oct. 1 *149
Controller, density .....Feb. 19 *188
Controllers, indicating....May 14 *244, Dec. 10 *221
Controllers, level...Mar. 19 *225, Apr. 16 *108, June 11 *280, July 23 *174

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Controllers, temperature...Apr. 2 *70, June 25 *171, Aug. 6 *172, Sept. 17 *238, Oct. 1 *72, Oct. 15 *108
Converters, digital ....Feb. 5 164
Conveyor ....Aug. 6 *177
Conveyor, belt ....July 19 *189
Conveyor, metal-belt ....Oct. 29 *90
Conveyor, screening ....Aug. 20 88
Conveyor, sludge ....Feb. 5 66
Conveyor, tunnel ....Nov. 12 *279
Conveyor, vibrating ....Oct. 15 *244
Conveyor with wire-mesh belt..June 11 *262
Cyclone—wet cyclone handles hot and abrasive slurries ....Nov. 26 *78
Data processing system....Oct. 29 157
Deaerator, horizontal ....June 25 *171
Defoamer, drum-filling ....Feb. 19 *92
Defoamers sonic....Jan. 8 72, Aug. 6 *90, Dec. 10 *96
Detection system, gas....Dec. 10 223
Detector, beryllium ....Apr. 2 *72
Detector, dew point....Nov. 12 *277
Detector, leak ....Mar. 5 170
Detector, temperature ....May 14 *108
Dew point instrument....Mar. 5 *171
Diffuser, rotating, increases fan efficiency ....June 11 *114
Diverter, flow ....Apr. 16 *222
Door, quick-opening ....Oct. 15 246
Drive, fluid ....Aug. 20 86
Drive, mixer ....Jan. 22 86
Drives, variable-speed....Feb. 19 184, June 11 *264, July 23 *170
Drum rotator, portable....Mar. 5 *90
Dryer—British vacuum tray dryer ....Mar. 5 *86
Dryer, compressed-air ....Dec. 24 *122
Dryer, gas ....May 28 *167
Dryer, heatless ....Feb. 19 182
Dryer, process ....Oct. 1 *146
Dryer, sonic ....July 23 *86
Duct, access ....Nov. 12 *283
Ductwork lined with urethane rubber ....July 23 174
Dust arrester ....Feb. 5 158
Emulsifier, ultrasonic ....Dec. 10 *218
Engine, expansion ....Jan. 22 180
Extractor, salt ....June 25 *171
Fan, axial ....June 11 *284
Fan, centrifugal ....May 14 *258
Feeders....Sept. 17 *232, Oct. 15 *253
Feeder, rotary airlock....Nov. 12 *276
Fiberboard, corrugated ....Oct. 29 88
Filters....June 11 274; June 25 *170, *172; July 9 *110, *191; July 23 *168
Filters, air....Mar 5 90, May 14 252, July 9 193
Filter, air—disposable....May 14 256
Filter—automatic pressure filter eliminates precoat ....Nov. 12 *112
Filter, flexible ....Apr. 2 *70
Filter media ....Dec. 24 *120
Filter, miniature ....Aug. 20 *185
Filter, rotary pressure....Dec. 10 *96
Filter, suction ....Nov. 12 *276
Filter, vacuum ....Mar. 5 *172
Filtration medium ....July 23 166
Fittings, high-pressure ....Mar. 19 *230
Fittings, jacketed access....Apr. 16 *227
Flask agitator ....Feb. 19 *90
Flow inducer combats cavitation in centrifugals ....Apr. 30 *82
Flowmeters..Mar. 19 *229, Apr. 2 *154, June 11 *284, June 25 *90, Nov. 12 *112
Flowmeter, mass ....Aug. 20 *86
Flowmeter, variable-area ....Apr. 16 *234
Furnace—breadbox-size, 5000 F. furnace ....Apr. 30 *86
Furnace, heat-treating ....Oct. 15 *243
Gage ....June 25 *88
Gage, beta ....Oct. 1 *68
Gage, miniature ....Nov. 12 *290
Gages, pressure...May 14 *108, Oct. 29 *90
Gages, tank....Jan. 22 *176, Feb. 19 92
Gages, thickness..Aug. 20 *188, Oct. 15 *248
Gage, vacuum ....Aug. 20 *90
Generator ....July 9 *188
Generator, hydrogen ....Oct. 29 *88
Generator, neutron ....Nov. 12 *296
Generator, thermoelectric ....Jan. 8 *70
Glass process equipment....Jan. 22 *86
Heat exchanger ....Jan. 22 84
Heat exchanger, titanium....Apr. 30 *154
Heat-transfer device ....Apr. 16 233
Heater, compressed-air ....July 9 *108
Heater, cryogenic, heats fluids without icing tubes ....Apr. 16 *104
Heater, drum ....Sept. 17 *232
Heater, infrared ....Sept. 17 *124
Heater, inline ....Feb. 19 *92
Heater, water ....Oct. 15 *106
Hopper ....Oct. 1 70
Hose clamp ....Oct. 15 *106
Indicators....July 23 *171, Nov. 26 *170
Indicator, dew point....Apr. 2 *156
Indicator, fallout ....Feb. 5 160
Indicators, humidity....May 14 *250, May 28 *170
Indicator, level ....Oct. 15 *106
Indicator, pressure ....June 11 *272
Indicator, sight flow....Dec. 24 *56
Indicator, solids ....Apr. 16 *238
Indicator, viscosity ....Sept. 3 *185
Indicators, temperature....Jan. 8 *72, June 11 *280
Instruments, electronic control—G-E and Motorola lines debut....Sept. 17 *122
Insulation, cryogenic ....Apr. 16 *108
Insulation, slip-on ....Mar. 5 90
Insulation, valve ....Apr. 30 *152
Integrator, strip-chart ....June 11 *286
Joint, steam—rotary ....Feb. 5 *70
Kettle, vacuum ....Apr. 16 *221
Kiln, tunnel ....Oct. 15 *249
Liner, fused silica....Jan. 22 176
Maintenance system (MT)....Apr. 2 *68
Manometer, electronic ....Mar. 5 88
Manometer, portable ....Oct. 15 *106
Marker, auxiliary pen....Apr. 16 *228
Meter....July 9 *110, Dec. 24 *121
Meter, flow—ultrasonic ....Feb. 5 70
Meter, miniature ....Apr. 2 *157
Meter, pH—portable ....Jan. 8 *150
Meters, purge....Feb. 5 *160, May 28 *172
Meter, solids ....Feb. 19 *181
Metering and mixing unit....Sept. 17 *237
Micromanometer ....Apr. 2 *152
Mill, grinding ....July 23 167
Mill, impact ....Jan. 8 *154
Mix cooker, tilting....Sept. 3 *102
Mixers....July 23 *90, Sept. 17 *124, Dec. 24 *56
Mixer, high-speed ....Feb. 19 186
Mixer, inline ....Mar. 19 *228
Mixer, portable ....Mar. 19 106
Mixer, ribbon ....Jan. 22 *178
Mixer, side-entering ....Sept. 3 *102
Mixer, variable-speed ....Feb. 5 *166
Mixer, vertical ....Apr. 2 152
Mixer-kneader from Britain...Oct. 29 *86
Mixing unit for plastics....Dec. 10 *219
Models—plastic units speed plant model assembly ....May 14 *108
Moisture applier ....Jan. 8 *70
Monitor, fission-product ....Sept. 17 237
Monitor, particle ....Nov. 12 *298
Monitor, plastic-tube ....Mar. 5 *176
Monitoring system, tank....May 14 106
Motors..July 23 *90, *172; Sept. 3 *195, Oct. 1 151
Motor, gear ....June 11 *258
Motor, pump ....Oct. 15 *106
Motor, underwater ....Feb. 19 *184
Motors, generators designed for simplified maintenance ....Oct. 1 *68
Nozzle, spray ....Nov. 12 *295
Oven ....Aug. 20 *90
Oven, infrared ....July 9 *190
Packing ....Oct. 15 *253
Packing, honeycomb ....Sept. 17 234
Packing—honeycomb packing boosts allowable gas velocity....May 14 *104
Packing, self-molding ....Aug. 6 *175
Photometer measures air pollution ....June 11 *116
Pipe, asbestos-cement ....July 23 *88
Pipe, corrosion-resistant ....Mar. 5 175
Pipe dope, Teflon....Aug. 20 *192
Pipe, glass-polyester ....Apr. 16 222
Pipe, plastic ....Jan. 22 *86
Plant—package ammonia plant..July 23 88
Plasma torch ....Aug. 20 *88
Porosimeter ....Oct. 15 *247
Precipitator ....Dec. 24 123
Press ....Nov. 12 *279
Pressure switch-gage ....Jan. 8 *152
Pressure vessel, lined....Jan. 22 *174
Probes—electronic probe units..Nov. 12 *288
Probe, high-temperature ....May 28 *98
Processor, self-cleaning ....June 11 *245
Psychrometer ....Apr. 30 148
Psychrometer, portable ....Mar. 5 88
Pulse converter ....May 28 *100
Pumps....July 9 *110, Sept. 3 *102, Nov. 26 *82
Pump, all-tantalum ....Jan. 22 173
Pump, boiler-feed ....Feb. 19 *187
Pump, canned ....Feb. 5 *160
Pump, canned gear....Feb. 5 *70
Pump, canned turbine....Mar. 19 227
Pumps, centrifugal....Feb. 19 *182, June 25 *90, July 23 *86, *167; Nov. 12 *288, Dec. 10 *94, *217, Dec. 24 121
Pump, centrifugal, handles large solids without clogging ....Oct. 15 *104
Pump, cryogenic ....May 28 98
Pumps, diaphragm....Mar. 19 *235, Dec. 10 *96, *227
Pump, dispensing ....Sept. 3 195
Pump, gear ....Mar. 5 *88
Pump, glandless ....Aug. 6 *90
Pumps, hand....Feb. 19 *90, May 14 106
Pumps, high-vacuum....Apr. 16 *226, Nov. 12 *285
Pumps, horizontal....June 11 *116, Aug. 6 *181
Pump, hydraulic ....May 14 *254
Pump, inline piston....Apr. 16 *220
Pumps, metering..Feb. 5 *68, Apr. 2 *70, Apr. 30 152, June 11 *256, Sept. 3 *191, Oct. 15 249
Pump, metering with infinite rate adjustment ....Mar. 19 *104
Pump, mixing ....Jan. 8 *72
Pump, motor—midget ....Aug. 6 *175
Pump, oscillating ....Oct. 1 *72
Pump, piston ....Oct. 1 *153
Pump, plastic ....Oct. 1 *70
Pumps, proportioning....Mar. 19 *224, Oct. 15 *244
Pump, sampling ....May 28 *171
Pump, sanitary ....Nov. 12 *281
Pump, self-priming ....Nov. 12 *300
Pumps, slurry....Jan. 8 *68, Oct. 15 *108
Pump, tube ....Nov. 26 *80
Pump, vertical process....Nov. 26 *174
Pump with unique impeller....Dec. 24 *54
Purifier, water ....Oct. 1 *144
Pyrolyzer ....Aug. 6 *173
Pyrometer indicator ....Aug. 20 *185
Pyrometer, two-color ....Feb. 19 *183
Reactor ....Dec. 10 *220
Reactor, continuous ....Mar 19 232
Reactor, glass-lined ....Nov. 12 *114
Recorder ....Sept. 17 *235
Recorder, chart ....Jan. 22 *172
Recorder, controller—electronic..Apr. 2 72
Recorder, millivolt ....Nov. 26 *80
Recorders, miniature ....Jan. 8 152, Nov. 26 *168
Recorder, ozone ....Mar. 5 *88
Recorders, portable ....Sept. 3 *100, Sept. 17 *236
Recorders, strip-chart ....May 14 *247, Oct. 1 *144
Recorders, temperature ....Mar. 19 *233, June 25 *169, Oct. 29 *157
Recorder, time ....Mar. 19 230
Recorders, vacuum ....May 28 *98, July 9 *108
Refractometer ....Aug. 6 *178
Refractometer, continuous ....Mar. 19 *226
Regulator ....June 11 *282
Regulator, air ....May 28 *166
Regulator, back-pressure ....Mar. 5 177
Regulator, flow ....Oct. 1 *148
Regulator for ultrapure gases...Feb. 5 *66
Regulators, gas....Feb 5 *68, Mar. 19 *232
Regulators, pressure ....May 28 *98, Oct. 1 *70, *150; Oct. 29 *159
Regulators, temperature ....Apr. 30 *148, May 14 242, June 11 *116
Relay, air ....May 14 *106
Sampler, air ....June 11 *274
Sampler, dry ....May 14 *240
Scale, belt conveyor ....May 14 *256
Screener, wet or dry....Feb. 5 *164
Scrubber ....Apr. 30 84
Seals, mechanical ....Nov. 12 *285, Nov. 26 170
Seal, mechanical shaft ....Feb. 19 *186
Seal, shaft ....June 25 *88
Sensor, liquid-level ....June 25 *173
Sifter ....July 23 *175
Sight glass ....Jan. 8 *72
Sight indicator ....Mar. 5 *175
Slide, rule, circular ....Jan. 8 *66
Slide rule, 26-scale ....Apr. 30 *84
Slurrying vessel ....Oct. 1 *146
Solvent extractor ....Mar. 19 *108
Solvent reclaimer ....Mar. 19 *108
Spectrometer ....June 11 272
Spectrophotometers ....May 14 *248, June 25 *173
Splitter, reflux ....Apr. 16 *237
Spray device applies plastic coating ....Apr. 16 *106
Spray guns ....Feb 5 *162, Mar 19 *235
Spray gun—coating ....June 25 *88
Spray gun for resin coatings....Apr. 30 *86
Spray, pressure ....Aug. 6 *181
Steel, prepunched, simplifies structural changes ....Dec. 10 *92
Still, molecular ....Aug. 6 *174
Strainer ....Aug. 6 *180
Switch, flow ....Apr. 16 224
Switch, pressure ....Apr. 2 70
Table, vibrating ....June 25 *169
Tank, mixing ....June 11 *287
Tank-car provides in-transit heating ....Dec. 10 *94
Tester, freeness ....Aug. 6 *92
Tester, ultrasonic ....Apr. 30 *150
Thermocouple ....Aug. 20 *86
Thermometer, dial ....Jan. 8 151
Thermometer, lock-in ....Feb. 19 88
Timer ....June 11 *273
Timer, electronic ....Aug. 20 *88
Titrator, continuous ....Dec. 10 92
Torsion balance ....Feb. 19 187
Transmitters ....July 23 *88, Sept. 3 *184, Oct. 1 *68, Oct. 15 *251
Transmitter, pressure ....Mar. 5 177
Transmitter, signal ....Dec. 10 *217
Trap ....July 9 *190
Trap, float ....Nov. 12 *295
Truck, fork lift ....Nov. 12 *114
Truck, order-picking ....June 11 261
Truck, tilt ....Sept. 3 *186
Tube, duplex ....Dec. 10 *94
Tube, heat exchanger ....Oct. 29 *88
Tubing checker ....Apr. 16 *235
Vacuum receiver ....Jan. 22 *181
Valves ....Aug. 6 *172, Sept. 3 *102, Nov. 12 *114
Valves, ball ....Feb. 5 *158, Mar. 5 *90, June 11 *116, Oct. 29 *88
Valves, ball—cryogenic ....Apr. 2 *72, May 14-252, Aug. 20 *90
Valve, ball—graphite ....Mar. 19 *225
Valve, ball—miniature ....Mar. 19 108
Valve, bar-stock ....July 23 *172
Valve, breather ....May 14, *249
Valves, butterfly ....June 11 *270, July 9 110, Oct. 1 *72
Valves, check ...Apr. 30 *151, Aug. 6 *90, Sept. 3 *187, Dec. 10 *224
Valves, control ...Jan. 8 *68,, Apr. 16 227, May 14 *241, 247; July 23 *88, *90 *166; Sept. 17 *234, Oct. 15-108, Oct. 29 *156, Nov. 12 *278
Valve, control—cryogenic ....Feb. 19 *90
Valves, cryogenic..Sept. 3 *197, Oct. 29 159, Dec. 24 56
Valve, diaphragm-type ....May 14 *106
Valve, drain ....July 9 110
Valve, electro-hydraulic ....Nov. 12 *294
Valve, flex ....Dec. 10 *223
Valve, flow control ....Apr. 16 235
Valve, foot ....Aug. 20 *186
Valve, gas shutoff....Aug. 20 *90
Valve, glass-lined ....Sept. 3 *100
Valve, helium ....June 25 172
Valve, high-pressure ....Apr. 30 *155
Valves, high-vacuum ....Mar. 5 *170, Oct. 1-70, Nov. 12 *292
Valves—jacketed valves ....Jan. 22 *86
Valve, lift plug....Oct. 29 *90
Valves, needle ..Apr. 30 *148, June 11 *244
Valve, pinch ....Sept. 3 *184
Valves, plug ....Mar 5 *178, Oct. 1 *151
Valve, reducing ....Apr. 30 86
Valve, relief ....Mar. 19 *234

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Valve, rotary ..... Apr. 16 *224
Valve, safety, relief ..... May 28 *100
Valves, sampling..Feb. 19 *187, Apr. 2 *157
Valves, shutoff ..May 28 *100, June 11 *255
Sept. 3 *188
Valves, shutoff and relief.....Feb. 19 *186
Valves, solenoid ..... Apr. 16 *108
May 14 *260, June 11 *266, July 23 *173
*175; Oct. 15 *252
Valve, switch ..... June 25 *90
Valve, vee-ball ..... Nov. 12 *287
Vapor deposition unit ..... Feb. 19 *188
Vehicle, handling ..... May 28 171
Ventilator, fiber-glass ..... Apr. 2 *72
Vessel, process ..... Feb. 5 *158
Vibrator, miniature ..... July 23 *170
Vibrator, variable frequency...June 11 266
Warmer, drum ..... Aug. 20 *194
Washer, pulp—horizontal .....Aug. 6 *92
Weigher, process ..... Dec. 10 *216
Weighing system, batch ..... Apr. 16 *223
Ethanol—Government okays plan to denature alcohol automatically (C)
Feb. 19 55

Ethyl Bromide
Atomic radiation wins full chemical-synthesis role (N)..... Dec. 24 *40
High-level radiation is catalyst for commercial ethyl bromide process (C) ..... Dec. 10 58
Ethyl hexanol—Aldox process plant will make 2-ethyl hexanol, other alcohols (C) ..... May 28 70

Ethylene
Conoco uses ethylene feedstock to make alpha-olefins called Alfene olefins (C) ..... June 11 83
Union Carbide Olefins, biggest U. S. producer, woos merchant business (C) ..... Apr. 2 38
Ethylene Glycol—Physical properties of ethylene glycol. W. S. Shuliman (charts & table)..... Oct. 1 118
Ethylene-propylene rubber (EPR) see **Rubber**

Europe
Common Market shapes supranational patent system (N) ..... May 28 86
Dutch gas discovery may trigger chemical, petroleum expansion (C)
Nov. 12 79

Evaporation
Air-evaporative cooler offers flexibility. L. S. Harris (charts)..... Dec. 24 *77
Desalting sea water—long-tube vertical evaporation produces fresh water—flowsheet. Eugene Guccione..Nov. 26 *102
Optimize solute-recovery operations. J. F. Kuong ..... Mar. 19 *173
Radio-frequency energy produces high-solids orange juice concentrate (C)
Apr. 16 73

Explosions
Designing a high-pressure laboratory. Stenberg & Coffey (charts)..Nov. 16 *115
Dow-Badische's Texas caprolactam plant explosion (C)..... Jan. 8 38
Emergency venting for tanks and reactors. Benjamin Block (charts and tables) ..... Jan. 22 *111
Hercules' Bacchus, Utah, plant explosion kills three (C)..... Sept. 17 91
Hercules' Bacchus, Utah, plant—second explosion in three months (C)
Nov. 12 81
Maumee Chemical explosion demolishes plant, kills ten (C)..... May 28 68
Olin Mathieson hydrazine unit at Lake Charles, La., hit by explosion (C)
Oct. 29 55
Olin Mathieson plant at Brandenburg, Ky., suffers severe explosion (C)
Apr. 30 56
Pane relievers vent explosive popoffs at Parke, Davis (N)..... Jan. 22 *70
Rocket lab arms itself for safety (N)
Aug. 6 *72
Union Carbide's Marietta, Ohio, plant hit by explosion and fire (C)..May 14 78

Exports
Soviet Bloc oil exports make spectacular growth (N)..... Dec. 24 *30
Tariff showdown makes processors choose sides. Frances Arne (N)
May 14 *82

Extraction
Differential extraction may win nuclear reprocessing role (C).....July 23 53
Examine leaching and extraction—CE Refresher. Coates & Pressburg (charts) ..... Jan. 22 125
Isobutylene extraction process will go commercial (C)..... May 28 65
Uranium recovered from Dakota lignite ores via solvent extraction (C)
July 23 52
Uranium refinery uses Petreco electrostatic separation process (charts) (N)..... Jan. 8 50
Uranium—two British solvent-extraction systems up enriched-uranium output (N) ..... July 9 98
Extrusion — Universal's autocatic machine process turns out glass-fiber-reinforced plastic shapes (C)
Aug. 20 58

F

Fermentation
Monosodium glutamate—fermentation process produces low-cost MSG from wheat starch (C)..... Jan. 22 64
MSG process center of patent infringement suit (C)..... Mar. 19 76

Fertilizers
Additive controls nitrogen losses in soil
Sept. 3 92
Bacterial action converts garbage to fertilizer (C) ..... Apr. 2 35
Diammonium phosphate—IMC's new plant introduces process refinements —flowsheet ..... Mar. 19 *148
Humic acid extracted from coal (C) Jan. 8 38, (N)..... Apr. 30 *68
Integration trend in fertilizers continues (C) ..... Aug. 20 60
Inventory—semiannual inventory of new plants and facilities. Apr. 16
155, Oct. 29 111
MagAmp—long-lasting compound from W. R. Grace..... July 23 80
More food means more need for nitrogen fertilizers. S. Strelzoff (tables) (N) ..... Feb. 5 *44
Nitrogen fertilizer complex to be built at Augusta, Ga. by Columbia Nitrogen—a joint venture (C)..... Sept. 17 89
Nitrophosphate processes promise profit in fertilizer boom (N)..... Dec. 10 *68
Phosphoric acid's vigor spurs optimizing efforts (chart & table) (N)
May 28 *72
Russia prepares to remedy farm chemicals lag (N)..... June 11 102
Sea water proposed for use in fertilizer manufacture (C) ..... Apr. 16 78
Shipping—new ways in bulk shipping offer international scope (C)..Aug. 6 60
Spanish market lures foreign capital (N) ..... May 14 96
Superphosphoric acid gets boost (N)
Oct. 1 *58
TVA's new basic concentrate for mix-your-own fertilizers (C)..... Sept. 17 94

Fibers
Acrylic fiber, called Zefkrome, from Dow (C) ..... Feb. 5 38
British producers plan merger (C)
Jan. 8 35
Merger off (C)..... Apr. 2 38
Postscript (N) ..... Dec. 10 82
Ceramic and quartz fibers studied for aerospace use (C)..... Nov. 12 81
Du Pont to produce new nylon tire cord (C) ..... Dec. 24 23
Hercules Powder expands polypropylene fiber plant (C)..... Mar. 19 76
Inventory—semiannual inventory of new plants and facilities....Apr. 16
163, Oct. 29 116
Japan develops new synthetic fibers (C) ..... Aug. 20 55
Japan's low-cost vinyl fiber called a breakthrough (C) ..... Sept. 3 65
Pluton, organic fiber, won't melt even at 18,000 F..... Jan. 8 *62
Polycarbonate textile fiber coming? (N) ..... Sept. 17 *108
Polypropylene—dyeable fiber claimed by Montecatini (C)..... Feb. 5 35
Rayon tire cord—Du Pont closes its last plant (C)..... Nov. 12 81
Rayon tire-cord makers' hopes rise with Du Pont withdrawal (C)
Nov. 26 45
"Semi-acrylic" fiber announced by Courtaulds, Ltd. (C)..... Mar. 5 55
Spandex demand spurs rush of new producers (C) ..... Feb. 19 60
Tacryl—improved acrylic fiber from Sweden resists soil (C)..... Oct. 1 37
Filament winding—technique adapted to glass-reinforced plastic moldings (C)
Apr. 2 40

Filtration
Bag finish triples gas filter life (chart) (N) ..... Nov. 12 92
Countercurrent filtration washing calculations. Bryant Fitch (charts)
Jan. 22 *119
Filter media sterilize liquids, gases (C)
Nov. 26 52
Formulas—practical filtration formulas. J. C. Sharbaugh (charts & tables)
Dec. 10 *153
Optimize solute-recovery operations. J. F. Kuong..... Mar. 19 *173
Porous-membrane pressure filter—key to new separation process (C).Nov. 12 79

Finance
Capitalized costs for incremental analysis—CE Cost File 68. G. T. Fisher
Aug. 6 146
Measuring management's performance. Chaplin Tyler (tables)..... Aug. 20 *133
Selecting R&D projects for profit. Solomon Disman ..... Dec. 24 87

Fire Protection
Battelle researcher fights fire with fire (N) ..... Mar. 5 *76
Chemical fights fire by choking off fuel supply ..... Oct. 15 *98
Emergency venting for tanks and reactors. Benjamin Block (charts and tables) ..... Jan. 22 *111
Fire extinguisher uses dry-chemical agent ..... Jan. 22 80
Fire retardants: plastics' entree to building. Frances Arne (N)..June 25 *62
Fire retardant protects epoxies. Nov. 26 *74
Flame-resistance testing of plastics. Feuer & Torres..... Apr. 2 *138

Flocculants
Cationic polymer for waste-water treating ..... June 11 108
Dow flocculent triples sewage filter capacity (N)... ..... Apr. 16 90
Polymeric flocculants..... Feb. 5 60

Flotation
Air flotation system cleans up industrial waste streams (C)..... May 28 36
Ammonia fosters sulfide ores flotation (N) ..... July 9 98

Flowsheets
Acrylates—Dow Badische's simple, direct path to acrylates. T. P. Forbath
Mar. 5 *96
Amine treating of sour gas: good riddance to H_2S. Peter Brennan..Oct. 29 *94
Cement—Revamped wet process is boosting cement yield. Wesley Perry, Jr. ..... Aug. 6 *100
Computer control in continuous soap-making process..... Oct. 15 *152
Diammonium phosphate: new IMC plant ushers in process refinements
Mar. 19 *148
Dodecylbenzene unit feeds chloromethylating offshoot..... May 14 *150
Hydrofluoric acid process gives new role to kneader..... Apr. 30 *94
Beer—What's doing in beer brewing?
June 25 *94
Ion-exchange system makes ultrapure water ..... Feb. 19 *100
Isocracking—New hydrocracking route bolsters gasoline yield..... July 9 *118
Key support for new nuclear plant: coolant cleanup. M. D. Robbins
Sept. 3 *110
Liquid-helium plant tackles gas that's hardest of all to liquefy..... Oct. 1 *76
Lubes—Squeezing pure lubes from waste oils. B. Cross..... June 11 *126
Nitric acid—New design recoups heat in nitric acid plants. T. P. Forbath
Dec. 24 64
Old method for fresh-water needs—long-tube vertical evaporation updated for desalting sea water. Eugene Guccione ..... Nov. 26 *102
Pentane—low-temperature isomerization now upgrades pentane at Shell
Aug. 20 *110
Phthalic anhydride—fluid-bed phthalic anhydride ..... Jan. 22 *104
Potash—World's largest supply feeds new potash plant. Bruce Cross
Nov. 12 *176
Process refined for petroleum-cracking catalyst at Davison Chemical..Apr. 2 *82
Rubber—special finishing line processes high-quality rubber. P. J. Brennan
Apr. 16 *126
Sodium silicate—new: liquid-process sodium silicate. F. C. Price.. Feb. 5 *76
Strontium—90 process helps stretch total worth of nuclear fuel....Jan. 8 *76
Styrene: two firms team up. Wilma Cortines ..... July 23 *96
Three polymerization lines yield ABS plastics array..... Sept. 17 *154
Water desalting by multistage flash distillation. Eugene Guccione. Dec. 10 *122
Water desalting plant to prove out electrodialysis ..... May 28 *104

Fluidization
Design for fluidization—report. J. F. Frantz (charts)
Pt 1 Mass and momentum transfer
Sept. 17 *161
Pt 2 Heat transfer..... Oct. 1 *89
Pt 3 Flow characteristics and mechanical design..... Oct. 29 *103
Fluid-bed phthalic anhydride — flowsheet ..... Jan. 22 *104
Fluidized solids—where they stand today. R. J. Priestley (charts)...July 9 *125
Plastic coating in fluidized beds. R. K. Levan ..... July 9 *170

Fluids
Fluid-bed processing—where it stands today. R. J. Priestley (charts).July 9 *125
Fluidization—design for fluidization—report. J. F. Frantz (charts) Pt. 1 Sept. 17 *161, Pt 2 Oct 1 *89, Pt 3
Oct. 29 *103
Recirculation via heat exchangers. T. A. Unger (charts)..... July 23 *119
Scale-up series. F. A. Holland (charts & tables)
Liquid-mixing systems..... Sept. 17 *179
Fluid-flow systems ..... Dec. 24 71
Silicone fluid resists viscosity breakdown ..... July 23 82
Transport phenomena in mass transfer. Gill & Barduhn..... Apr. 16 *167
Vacuum pump fluid made from polyphenyl ether ..... Aug. 6 86

Fluorocarbons
Blowing agents grow on foam expansion (tables) (N) ..... Mar. 19 *84
New routes seek heat-resistant materials (C) ..... July 9 75
Tedler, polyvinyl fluoride film, bids for construction role..... Dec. 10 *86

Foams
Blowing agents grow with foams—output, consumption, end-uses (tables) (N) ..... Mar. 19 *84
Dyna-Foam, expanded polystrene, threatens paper..... Jan. 8 58
Foamed polystryene emerges as material of construction..... Apr. 2 *66
General Tire grants licenses to its foam process (C) ..... July 9 80
General Tire wins foam patent case against Mobay Chemical (C)..Apr. 30 54
Isocyante promises self-extinguishing urethane foams..... June 25 82
Metallic foams—new materials of construction ..... Mar. 5 *84
Plastic foam bubbles into "instant" shelter ..... June 25 *80
Polyether-silicone copolymers: Key to better products..... Apr. 2 *62

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Polyurethane patent dispute—Japanese agency decides for Bayer (C)..Aug. 6 60
Starting material for rigid foam Dec. 24 50
Super-soft urethane foams made from new polyether.....July 9 102
Urethane foam gets finer texture from silicone fluid.....Aug. 20 *80
Urethane foam-to-fabric adhesive Oct. 15 100

Food Chemicals
Avicel, microcrystalline cellulose, adds bulk but no calories (C).....Apr. 2 40
Flavor enhancer.....Mar. 19 *100

Forming
Titanium forming and welding—methods, fabricators. R. V. Hughson Aug. 6 *150
Fractionating—Foam fractionation removes detergents from sewage water Apr. 30 *62

Fuels
Biochemical fuel cell can have useful future (N).....Apr. 2 54
Coal research shifting into high gear—four projects (N).....July 23 74
Energy market forecast, 1960-1980—coal's share will grow (table) (N) Feb. 19 76
Fuel cells—commercialization a long way off (C).....Sept. 3 65
Fuel cell electrodes from TAPCO (C) May 14 78
Fuel cell gets key role in space program (N).....June 11 *100
Fuel cell—hydrogen-oxygen cell for space craft (N).....Apr. 16 86
Fuel cell—Westinghouse will try to develop a cell into an aerospace device (C).....Sept. 3 70
Heat technology report see under **Heat**
Kerr-McGee Oil acquires Spencer Chemical's nuclear fuels department (C) July 23 55
Liquid methane less hazardous than gasoline, tests show (C).....Mar. 19 78
More efficient energy on the way—profit squeeze report.....Jan. 8 *91
Nuclear energy—will it fit the CPI? R. W. Ritzmann (tables).....Sept. 3 117
Nuclear fuels reprocessing—Davison Chemical continues plans for plant (C).....Mar. 19 73
Nuclear fuels reprocessing—differential extraction may win role (C)..July 23 53
Nuclear fuels reprocessing—first private plant may be built near Buffalo, N. Y. (C).....July 23 60
Nuclear fuels reprocessing—G-E proposes multi-firm venture (C)..Feb. 5 38
Nuclear fuels reprocessing—nonaqueous process may increase recovery (C) Jan. 8 40
Petroleum fluid coke is main fuel of giant steam unit (C).....July 9 80
Strontuim-90 fuel—crash program satisfies exotic fuel need (chart) (N) June 11 94
Strontuim-90 recovery process stretches worth of nuclear fuel—flowsheet Jan. 8 *76

Furnaces
Carbon-black furnace ups quality with more efficiency (C).....July 23 58
Cold-wall vacuum furnace for bright-annealing of titanium (N)....Apr. 16 *96
Heat technology report see **Heat**
National Steel readies second blast furnace for injection of raw coal (C) Aug. 20 53
Plasma arc used in metal-melting furnace at Linde (C).....Oct. 29 53

G

Gages
Level indicator for liquid sodium vessels. R. E. Leonard (P.N.)....Oct. 29 *134
Vacuum gages—high-vacuum technology report. H. A. Steinherz Aug. 20 *126

Gas
Bureau of Mines gasifies raw lignite (C) Apr. 30 49
Catacarb scrubbing process gets commercial tryout in Mexico (C) Sept. 3 65 (chart) (N).....Nov. 26 60
Conversion of solid fossil fuels to high-BTU pipeline gas (QED).....Nov. 26 186
First chilled LPG sails from Arabia to Japan (N).....Jan. 22 78
Gas compression. D. M. Church
Pt. 1 Thermodynamics of ideal gases Mar. 5 *127
Pt. 2 Calculations of nonideal gases simplified.....Mar. 19 *167
Pt. 3 How to pick centrifugal compressors.....Apr. 2 *117
Industrial gas sales up (N)....Mar. 19 94
Inert gas enclosures' automatic breathing system. J. T. Fordham (chart) (P.N.).....July 9 158
Linde's air-separation plant at Deer Park, Tex., on stream (map) (C) Feb. 19 57
Methylacetylene industrial gas, called Mapp.....Jan. 22 80
Steam-reforming process at Chemico converts naphtha to synthesis gas (C) Oct. 1 40, (chart) (N).....Nov. 12 *96
Subzero shipping opens new era for liquefied gases (table) (map) (N) Aug. 6 *64
Thermal conductivity of gases and vapors. William Shulman (P.N.) Sept. 3 *152
Using pVT data to calculate H and S. David Cornell (charts & tables) Mar. 19 *159
Water content of nitrogen and oxygen at low temperature. J. D. Constance (chart) (P.N.).....Oct. 1 *120
Xenon tetrafluoride synthesized at Argonne National Lab. (C) Oct 15 71, Nov. 23 *106

Gaskets
Bolt torques and gaskets for glassed-steel equipment. B. G. Staples (charts and tables).....Sept. 17 *200
Getting the most out of gaskets—selection, installation. E. H. Stubenrauch (tables).....Sept. 3 *123
Glass-filled Teflon makes better gaskets Feb. 5 *64
Select and install gaskets effectively. J. J. Whalen (tables).....Oct. 1 *83

Gasoline
Chelate process cuts gasoline sweetening cost at Mobil refinery (charts) (N).....Mar. 5 66
Isocracking process bolsters gasoline yield—flowsheet.....July 9 *118
Isomax process—formerly called Isocracking—to get Canadian Oil plant (C).....June 11 86
Isopentane—low-temperature isomerization upgrades pentane—flowsheet Aug. 20 *110
Selective hydrogenation of pyrolysis gasoline (chart & table) (N)..Nov. 26 54

Gels—industrial gels derived from guar gum.....June 11 *110

Generators
Bottled generator supplies 10 watts for 10 years without refueling (N) Mar. 19 *82
Electrohydrodynamics—power-generating method at G-E (C).....Jan. 8 40

Germany
Phthalic process at Von Heyden makes o-xylene look even better. T. P. Forbath (chart) (N).....Sept. 17 *98
West German chemical investment sets record (N).....Oct. 15 82
West Germany's chemical trade (N) Oct. 1 58

Glass
Corning's Chemcor glass bounces more, breaks less (C) Oct. 15 *76...Nov. 12 *110
Glass microballoons make bulk filler for plastics.....Jan. 8 *62
Glassed-steel equipment—how to work with it. C. M. Knoll (tables) .June 11 *214
Glassed-steel equipment see also **Steel, Equipment**
Glassed steel—fire-bonded glass helps steel resist corrosion. C. M. Knoll (charts).....May 28 *150

Glass Fibers
Extrusion machine automatically turns out glass-reinforced plastic shapes (C).....Aug. 20 58
Fiber optics—key feature of high-speed camera (C).....Nov. 12 81
Glass-fiber reinforced plastic pipe. L. J. Geiger Pt 1 Aug. 20 *160, Pt 2 Sept. 3 162
Glass-filled Teflon makes better gaskets Feb. 5 *64
Graphite finish triples life of glass-fabric gas-filter bags (chart) (N) Nov. 12 92
Rocket propellant housing made of glass fibers (N).....Aug. 20 *72
Gold—Teflon-gold fabric wards off 3,000-F. heat.....Apr. 30 *76

Graphite
G-E converts graphite to diamonds without a catalyst (N).....Oct. 29 *76
Graphite heat exchangers—when to use them. S. H. Friedman (charts & tables).....July 9 *133
Lower permeability graphite. Reviloch & Stambaugh (tables).....June 25 *148

Great Britain
Imperial Chemical and Courtaulds may merge (C).....Jan. 8 35
Merger off (C).....Apr. 2 38
Postcript (N).....Dec. 10 82
Imperial Chemical on stream with first units of chemical complex (N).Oct. 1 *56
Lithium chemical imports may get antidumping duties (C).....Oct. 29 60
Phthalic producers seek protective import duty (N).....Oct. 1 52
Scotland uncovers new corrosion inhibitors for steel (table).....Sept. 17 *208
U.K. stamps O.K. on gas lift from Africa (map) (N).....Jan. 8 46

Grinding
Autogenous grinding gets ore beneficiating jobs (N).....Nov. 26 58
Guide to crushing and grinding practice—report. A. L. Stern (tables) Dec. 10 *129
Pt 1 Disintegration.....Dec. 10 130
Pt 2 Equipment.....Dec. 10 139
New ideas clarify grinding principles. F. C. Bond (charts & tables)..Feb. 5 *103

H

Heat
Heat technology—report (charts & tables).....June 11 *135
Combustion. A. F. Duzy.....June 11 138
Electricity. K. N. Woollen...June 11 145
Cryogenics. Dubs & Thompson June 11 152
Refractories. W. L. Wroten..June 11 158
Insulation. J. M. Barnhart...June 11 164
Heat exchangers. D. S. Morton June 11 170
Heat transfer. A. S. Foust...June 11 177
Plasma arc used in metal-melting furnace (C).....Oct. 29 53

Heat Exchangers
Air-evaporative coolers offer flexibility. L. S. Harris (charts).....Dec. 24 *77
British unit uses air-water froth to up efficiency (C).....July 23 55
Codes for exchangers to be discussed at Heat Transfer Conference (N) July 23 70
Graphical method simplifies heat-exchanger calculations. Mickley & Korchak (charts)
Determining performance....Oct. 15 *181
Finding optimum economic size Nov. 12 *239
Graphite heat exchangers—how to choose them. S. H. Friedman (charts & tables).....July 9 *133
Heat exchangers dominate process heat transfer — Heat technology report. D. S. Morton (chart & table) June 11 *170
Heat exchanger producers pressed by hard times (C).....Mar. 19 73
Maintenance — Chemistry in maintenance report. C. M. Loucks (chart) Mar. 5 112
Recirculation via heat exchangers. T. A. Unger (charts).....July 23 *119
Scale-up of heat exchange systems. F. A. Holland (charts & tables) Nov. 26 *119
Tubing of welded carbon steel gains favor. H. F. Hinst (charts & tables) Dec. 24 106

Heat Transfer
Advances in heat transfer theory—Heat technology report. A. S. Foust (charts).....June 11 177
Fluid-bed heat transfer—Fluidization report. J. F. Frantz (charts)..Oct. 1 89
Heat Transfer Research, Inc. formed (C).....Sept. 17 94
Sodium systems proposed for gas-fired power plants (C).....Apr. 30 51
Solids heat transfer—apply theory to equipment design. A. D. Holt (charts & tables).....Jan. 8 *107
Vibration ups heat transfer rates 100% (C).....Apr. 16 78

Heating—Vent for liquid heating system. H. J. Digeser (P. N.).....Oct. 29 *132

Helium
Canada's first commercial production will be three-way venture (C) Aug. 20 53
Government gets set for demand rise (N).....Oct. 15 92
Liquid-helium enters commercial-scale production at Linde—flowsheet Oct. 1 *76
9% nickel steel holds helium at −320 F. J. D. Heffernan (charts & table) Oct. 15 *210
Research project on helium properties (N).....July 9 98

Herbicides—Selective weed killer and a soil sterilant.....Feb. 5 62

Hexanetriol threatens glycol.....Mar. 5 80

Hexanitroethane — Lockheed licenses American Cyanamid to make pilot-plant amounts (C).....Mar. 5 60

Hungary—Acoustic burner may make U. S. debut (C).....Sept. 17 96

Hydrazine — Polymer Corp.'s catalyst stabilization process (C)....Sept. 17 96

Hydrocarbons
Hydrogen process broadens feedstock range (chart & table) (N)..July 9 *88
Hypro cracking process from UOP cleaves hydrogen from hydrocarbons (C) Apr. 30 49, (Chart) (N) May 14 *90, (Chart) (C) June 11..... 88

Hydrochloric acid—Phosphoric acid process from Israel uses hydrochloric-based route (C).....June 11-88, (Chart) (N) Dec 24 *34

Hydrodealkylation
Hydeal process touted for upgrading coke-oven benzene (N).....Mar. 19 94
Sun Oil process at new Ohio plant boasts feedstock flexibility (chart) (N).....Oct. 15 *80
Thermal route to petro-benzene called simpler (C).....Mar. 5 53
Unisorb process concentrates aromatics for hydrodealkylation (C)....May 28 68

Hydroelectric Power—Alaska dam would spawn power-based industries (tables) (map) (N).....Oct. 1 44

Hydrofluoric Acid — Kneader gets new role in HF process at Dixon Chemical—flowsheet.....Apr. 30 *94

Hydrogen
High-pressure naphtha reforming moves ahead (chart) (N).....Nov. 12 *96
How hydrogen attacks steel (chart) Mar. 5 *142
Hydrogen—key to TAPCO's fuel cell electrodes (C).....May 14 78
Hypro cracking process from UOP cleaves hydrogen from hydrocarbons (C) Apr. 30 49, (Chart) (N) May 14 *90, (Chart) (C).....June 11 88
Linde Co.'s new liquid hydrogen plant at Ontario, Calif. (N).....Apr. 2 *60
Liquid hydrogen—it will take a lot to reach the moon (C).....Oct. 1 40
Liquid hydrogen passes another space test (N).....Nov. 12 90

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Research will study production of hydrogen from naptha (C)....Nov. 12 86
Topsie—SBA process makes hydrogen from wide range of feedstocks (chart & table) (N).....July 9 *88
Hydrogenation—Kellogg process salvages pyrolysis byproducts (chart & table) (N).....Nov. 26 54

I

Imports
Britain may slap antidumping duties on lithium chemicals (C)....Oct. 29 60
British producers seek phthalic protection (N).....Oct. 1 52
Chemical costs curb free trade (table) (N).....July 9 94
Petrochemical producers seek oil quotas (C) Apr. 2 33, (C).....Apr. 30 51
Tariff showdown makes processors choose sides. Frances Arne (N) May 14 *82
Information Retrieval — Command Retrieval Information System (CRIS) (C).....Oct. 1 35
Inorganic Chemicals
Inventory — semiannual inventory of new plants and facilities....Apr. 16 156
Oct. 29 112
Inventory—semiannual inventory of new processes and technology Jan. 22 133
Inventory—13th inventory of new processes and technology.....Aug. 6 117
Insecticides
Cygon, competitor of DDT....May 28 92
Telodrin effective on most important crops.....Mar. 19 100
Institute of Radio Engineers—Meeting topics: AIEE merger and recruiting Apr. 30 124
Instruments
Air monitors—gas analyzers start nationwide auto fume study (N) Feb. 5 *52
Automatic type reader announced by IBM (C).....Dec. 24 21
CE Cost File. B. G. Liptak
No. 61 Level controllers.....Feb. 5 130
No. 63 Flow instruments.....Mar. 19 *196
No. 70 Control panels.....Oct. 1 *122
CE Cost File 65. Installed instruments. D. K. Ridley.....May 14 206
Cooling-tower ills studied by instruments (N).....Apr. 2 *58
Cycle counter for zone-refining systems. S. L. Gumprecht (P. N.) Nov. 26 *140
Device amplifies signal to recorder. Gomezplata & Marsheck (P. N.) Oct. 1 *116
Du Pont entering instrument field with stream analyzers (C) Feb. 5 33, (C) Aug.6 62
Gas chromatograph from Aerojet ready soon (C) Aug. 6 62, (N) Aug. 6 78
Level—high-precision devices uses radioisotope. Osborn & Allen (P. N.) Jan. 22 *144
Oscilloscope analyzer cuts repair costs and time (N).....Feb. 5 *50
Robot inspector finds flaws in steel pipe (N).....Apr. 16 94
Spectrometer—new device is small but sensitive (N).....Oct. 15 96
Stream analyzer spots vanadium, nickel; protects catalyst (C)..Oct. 1 35
Tachometer made from "spare parts". Gomezplata & Sykes (P. N.) Mar. 19 *190
Trainable machines based on memistors (C).....Oct. 1 37
Turbidity problems lightened by fluorescent tube. E. F. Symons (P.N.) Jan. 22 *146
Insulation
Ceramic—magnesium oxide ceramic makes good insulator.....Aug. 20 82
Doryl, Westinghouse new resin, for electrical insulation (C) Oct. 15 *73, Oct. 29 *80
Insulation saves heat, money—Heat technology report. J. M. Barnhart (charts & table).....June 11 *164
IBM technique forms thin insulating films on surfaces (C).....Nov. 26 50
Plastic material joins polystyrene and polyethylene .....Oct. 1 *64
Ion beam produces chemicals in Rocket Power's new process (C).....Dec. 24 28
Ion Exchange
Ion exchange treats waste liquors (C) Nov. 26 52
Japan reports first large-scale use of continuous ion exchange (C) Nov. 26 50
Plutonium processing via new ion-exchange system wins favor (chart) (N).....Apr. 2 *44
Ultrapure water made by ion-exchange system—flowsheet Feb.19 *100
Iron
Arkota's Arizona plant launches Madaras direct reduction process in U. S. (C) Jan. 8 40, (N).....Mar. 5 *62
Autogenous grinding gets ore beneficiating jobs (N).....Nov. 26 53
Blast-furnace output could be doubled with existing means, experts say (C) Apr. 30 54
Direct reduction process bids to take scrap out of steelmaking (C) Feb. 19 62
Prereduction during ore pelletizing ups blast furnace efficiency (C)..Oct. 1 40
U. S. Steel researching method to speed iron making (C).....Mar. 19 76
Irradiation
Irradiation technique for cross-linking polymers (N) .....Oct. 15 90
Shawinigan preforming irradiation process enhances properties of polymers (C).....Sept. 3 70
Isobutyl acrylate goes commercial May 14 102
Isobutylene
CFR's three-step extraction process will go commercial (C).....May 28 65
CFR process—British Hydrocarbon will be first user (C).....June 25 58
Isocyanates
New isocyanate promises self-extinguishing urethane foams——June 25 82
Toluene diisocyanate expansions (C) Sept. 3 70
Isocyanurates for use in plasticizers, intermediates .....Sept. 17 118
Isomerization
Humble process eases m-xylene glut (C) .....Jan. 22 59
Shell's low-temperature isomerization upgrades pentane—flowsheet Aug. 20 *110
Isomers—Trap process separates close-boiling isomers (chart) (N) Sept. 17 102
Isoparaffins .....Apr. 30 76
Isopentane
Shell's process gains higher conversion (N) .....Feb. 5 56
Shell produces isopentane on commercial scale—flowsheet.....Aug. 20 *110
Isoprene—Czechs give two-stage process details (N) .....July 9 94
Phosphoric acid process via hydrochloric-based route (C) June 11-88, (C) Dec. 10-55, (Chart) (N) Dec. 24 *34
Italy—Montecatini's Brindisi petrochemical complex swings on stream (N) May 14 *94

J

Japan
Caprolactam — Toyo photochemistry process cuts cost (chart) (N) Mar 5 72
Cement plant designed around computer control system (N)....Apr. 30 58
Cement plant uses computer system to tighten kiln control (charts) (N) Oct. 29 *62
Chemical team to study Western practices (N).....Oct. 15 90
Chlorine process—Daiki will pilot evaluation of Chlormetals' Szechtman cell process (C).....Jan. 22 59
Humic acid extracted from coal (N) Apr. 30 *68
Ion exchange—Asahi Chemical reports first large-scale use of continuous ion-exchange (C) .....Nov. 26 50
Mitsui Chemical's new plants will use Du Pont technology (C)....Aug. 6 60
Phenol process—two firms get licenses to Hooker process (C).....June 25 55
Paint, called Gamma Solvent, withstands flame, high heat (C) June 25 55 (C) .....Sept. 3 *67
Synthetic fibers—low-cost vinyl fiber, other new fibers (C) Aug. 20 55, Sept. 3 65

K

Kilns
Lime kiln—unique burner design boosts vertical kiln output (C)..Aug. 20 (Chart) (N).....Sept. 3 55 *74
Kinetics
Calculating free-energy minimization. R. C. Oliver & others (tables) Feb. 19 121
Corrosion of film-forming metals (Pt. 2). J. E. Draley.....Nov. 26 *152
Reaction order—rapid way to estimate the order of reactions. J. H. Flynn (tables) .....Aug. 20 *137

L

Labor
Are your hourly men boxed in? John Perry .....June 11 *196
Automated plants run despite strikes (C) .....Dec. 24 23
CE Cost File 62. Operating labor required at various plant capacities. F. P. O'Connell (chart).....Feb. 19 *150
Developing the better operator. R. N. Stapelton .....Oct. 15 *198
Federation of Independent Labor Organizations formed at Humble (C) Feb. 19 62
Gulf Coast plants experimenting with by-the-hour contract workers (C) Apr. 2 33
OCAW-Gulf contract relaxes jurisdictional lines (C).....Jan. 22 64
Oil refineries employing fewer workers, BLS survey finds (C).....Mar. 5 53
Sperry Gyroscope engineers return after brief walkout .....Apr. 30 124
Staffing, organizing, maintaining in-plant technical departments. J. M. Leathers (chart) .....May 14 185
Standards for engineering-management relations adopted by PE's (C)..July 9 73
Union in: General Services contract operators out at Lavino (C)..May 14 73
Unionizing engineers — three moves mark renewed effort.....Mar. 19 186
Lactic Acid—Monsanto will build world's first synthetic lactic acid plant in Texas (C).....Oct. 1 42
Lactone called TMBL.....Mar. 19 *98
Latex—Styrene butadine latex speeds drying of paper coatings.....Jan. 22 80
Law
Air pollution regulations—report. J. E. Yocom (charts).....July 23 *103
Bayer wins over Du Pont in polyurethane foam patent dispute (C) Aug. 6 60
Celanese's new polyacetal patent spices legal hassle (C).....Apr. 16 71
Detergent foam problems surge; Britain, Germany, some U. S. states bar non-biodegradable products (N)...Oct. 15 *84
Don't lose a patent by premature use. A. W. Gray.....Jan. 8 *117
Drugs face stiffer regulations (N) Nov. 12 98
Engineer wins case against firm in know-how fight.....May 28 *136
Federal pollution law starts two cleanups (C) .....Jan. 22 66
General Aniline & Film may go on the block in ownership hassle (C)..Aug. 6 60
General Tire wins foam patent case against Mobay Chemical (C)..Apr. 30 54
If you're a nuisance, you court trouble. A. W. Gray.....May 14 *192
Industrial espionage laws too mild? (C) Nov. 26 52
Patent suit in Italy could affect U. S. phenol-from-cumene plants (C) June 25 53
Polyurethane foam patent dispute—Japanese decides for Bayer (C) Aug. 6 60
Trade secrets—Are you free to change jobs? A. W. Gray.....Oct. 29 *126
Leaching
Alkaline leach process to extract copper from low-grade ores (C).....Aug. 6 57
Canadian process yields lithium carbonate from spodumene (C)...July 23 60
Countercurrent device continuously leaches metals from ore (C)..Jan. 22 61
Examine leaching and extraction—CE Refresher. Coates & Pressburg (charts) .....Jan. 22 125
Lignite
Bureau of Mines gasifies raw lignite (C) Apr. 30 49
Dakota ores—uranium recovery attracts another firm, Kermac Nuclear Fuels (C).....Aug. 6 57
Dakota ores yield uranium to Susquehanna-Western's solvent-extraction process (C).....July 23 53
Lime
Kiln—burner design boosts output of vertical kiln 500% (C).....Aug. 20 55
Kiln's unique burner design boosts capacity at Union Carbide Metals (chart) (N) .....Sept. 3 *74
Liquids
Densities—improved equation to estimate liquid densities. S. H. Fishtine (P.N.) .....Sept. 3 154
Finding diffusion coefficients in binary liquid systems. Canjar & Kamal (tables) .....Dec. 10 159
Helium liquefaction—Linde tackles commercial production—flowsheet Oct. 1 *76
Liquid-solids blending — CE report. J. J. Fischer (charts).....Feb. 5 *98
Safe unloading of liquid olefins and diolefins .....May 28 *146
Scale-up of liquid-mixing systems. F. A. Holland (charts & tables)....Sept. 17 *179
Storage—coated tunnels offer storage bargain (N) .....May 28 *82
Lighting—Slotted fixtures throw more light on plant operations (P.N.) May 14 *204
Literature—Information—How to get information from Washington. R. D. Stevens .....Dec. 24 92
Lithium—Britain may slap antidumping duties on lithium chemical imports (C) .....Oct. 29 60
Lithium carbonate — Leaching process from Canada produces lithium carbonate from spodumene (C)..July 23 80
Lubrication
Auto lubes — will no-care cars doom future markets? (table).....Apr. 30 *60
Bearings—lubrication and maintenance of motor bearings. J. R. Autenreith Apr. 2 *128
Lube terminal offers 2,000 grades (N) May 28 *76
Processing oils tailored for reduction of tinplate.....Sept. 17 118
Pure lubes recovered from waste oils—flowsheet. B. Cross.....June 11 *126
Radiation resistance for lubricant greases (N) .....Oct. 15 92
Self-lubricating epoxy .....Dec. 24 48
Teflon lubricant comes in liquid or grease form .....Sept. 3 92
Tungsten disulfide—99.8% pure—lubricates at high temperatures, pressures Oct. 1 64
Luminescence — new polymer-testing method called oxyluminescence (N) Oct. 15 90

M

Magnets
Magnetic alloy, Vicalloy, is ductile Feb. 19 *82

Magnetic barium ferrite is easy to cut Jan. 8 64

Maintenance
Badger Mfg. offers contract maintenance service (N)....Mar. 5 68
Chemistry tackles plant maintenance —report. C. M. Loucks (charts) Mar. 5 *103
Cooling-tower ills studied by instruments (N)....Apr. 2 *58
Critical-path scheduling simplified with job progress charts. C. W. Lowe (charts & tables)....Dec. 10 170
Electrical equipment — money-saving maintenance methods. J. R. Autenreith (chart)....Apr. 2 *138
Fresh-water plant will test scale prevention (chart) (N)....Jan. 22 74
Getting ready for winter?....Nov. 12 *254
Gulf Coast cold snap caused major operating problems (C)....Feb. 5 35
Oscilloscope analyzer, heart of diagnostic program, boosts on-stream time (N)....Feb. 5 *50
Painting—How to reduce maintenance painting costs. R. K. Swandby (charts & tables)....Apr. 30 115
Pipefitters wade in to keep plant on stream....Oct. 15 *204
Potash plant eases clean-out of thickening tanks....July 23 *144
Probability, downtime and doomed designs. E. J. Gibbons (charts & table) Nov. 12 250
Radioisotopes permit routine inspection of valves and piping. P. J. Brennan....Oct. 20 *140
Shower spray prevents dirt accumulation in coating operations. Rene Schneider (P.N.)....Mar. 19 *188
TV keeps tabs on distant pumps at Texas refinery (N)....Apr. 2 *56
Maleic anhydride made from butenes via Petro-Tex unique process (C) Jan. 8 33
Maleic hydrazide spray keeps grass short Jan. 8 64

Management
Are your hourly men boxed in? John Perry....June 11 *196
Beauty and the boss. Auren Uris Nov. 12 *244
Conference on Managing Petroleum and Petrochemical Operations Jan. 22 76, Feb. 5 *48, Feb. 19 66, Mar. 5 76, *166; Apr. 2 *48....Apr. 30 7
Conference on Managing Petroleum and Petrochemical Operations—for papers presented see Managing petrochemical operations
Creative talent—how to spot it. Jenness Keene....June 25 *134
Critical-path scheduling—report. J. W. Mauchly (charts)....Apr. 16 *139
Critical-path scheduling simplified with job progress charts. C. W. Lowe (charts & tables)....Dec. 10 170
Dealing with an outside designer. S. B. Hettig, Jr....June 25 *101
Decision-making aided by new tools—PEP, PERT, Critical Path, others—Profit squeeze report....Jan. 8 85
Fight contractor tips toward a better plant. J. P. Wiseman....June 25 *105
Engineers: are they getting scarce? R. A. Labine (charts & tables) Sept. 3 *144
Evaluating the proposed plant. Robert Frumerman (chart & tables)..Oct. 1 101
Executive jobs burgeon in '62....Jan. 8 120
Good ideas need selling! Herbert Popper....July 23 *130
How to motivate engineers. J. E. Hughes....Aug. 20 148
How to solve optimization problems. Lewis Iscol....Feb. 19 *107
If you're a nuisance, you court trouble. A. W. Gray....May 14 *192
Interviewing job applicants—sharpen your skill. J. W. Glimartin...Sept. 17 *194
Legal pitfalls in changing jobs. A. W. Gray....Oct. 29 *126
Management. Chaplin Tyler
The nature of management (table) Feb. 5 *99
How a good manager hits the mark Mar. 5 *121
Building an organization structure Apr. 2 *107
Steps in becoming a better manager Apr. 30 *105
Reading to become a better manager —bibliography....May 28 111
Training develops the better manager June 25 *129
Management planning for growth July 23 *123
Taking the measure of management (tables)....Aug. 20 *133
Management—art or science?..Sept. 17 *189
Management attitudes in Europe and the United States (QED)....Nov. 12 337
Managing petrochemical operations
Community relations for the plant not yet built. McKee & Harmon Apr. 30 101
Dealing with absentee management. T. T. Chase....May 14 173
Long-range planning in markets and technology. Edward Tarnell..May 28 127
Make the most of engineering talent. D. J. Castoni....May 28 131
Mexican-American enterprises — an siders' view. Eliot Camarena May 14 *178
Organizing, staffing and maintaining in-plant technical departments. J. M. Leathers (chart)....May 14 *185
A public-relations program for the established plant. V. J. McCoy June 11 187
Decision-making—symposium on new techniques see **Operations Research**
Measuring engineering efficiency—the PACE method....Dec. 24 91
Meet the press....Feb. 5 *124
Process simulation can improve plant operations at less cost. Armstrong & Olson (charts)....Sept. 3 *135
Profitable plants: design, construction, operation. Robert Frumerman..Apr. 16 133
Profit-sharing—does it pay off for engineers? V. Bashian....Nov. 26 *134
Recruiting—"search firm" hunts engineer-managers—interview with P. H. Kiernan....Oct. 1 *108
Safety—Be hard-headed about safety gear. H. E. Webb, Jr....July 23 *136
Salaries—top CPI executives' compensation (table)....July 9 *150
Selecting R&D projects for profit. Solomon Disman....Dec. 24 87
Standards for engineering-management relations adopted by PE's (C)..July 9 73
Suffering from execumania? L. D. Barton....Oct. 15 *196
Uncovering your competitor's costs—panelists offer suggestions...Nov. 26 *109
Union contract at Gulf relaxes jurisdictional lines (C)....Jan. 22 64
Unnecessary work: are you guilty? W. H. Richardson....Jan. 8 *122
What do foremen need from their bosses?—ten-point code. B. Von Der Hedyt....Mar. 5 136
Will your crew make or break you? W. H. Richardson....Aug. 20 *152
Marshall & Stevens annual indexes of comparative equipment costs, 1913-1961 (charts & table)....Mar. 5 125
Marshall and Stevens indexes of comparative equipment costs Jan. 8 156, Jan. 22 182, Feb. 5 172, Feb. 19 189, Mar. 5 179, Mar. 19 237, Apr. 2 158, Apr. 16 239, Apr. 30 156, May 14 263, May 28 173, June 11 289, June 25 175, July 9 194, July 23 176, Aug. 6 182, Aug. 20 196, Sept. 9 198, Sept. 17 239, Oct. 1 153, Oct. 15 255, Oct. 29 161, Nov. 12 304, Nov. 26 176, Dec. 10 230, Dec. 24 123
Masers—Bell Telephone unveils five optical masers that generate coherent light from a single gas (C)...Sept. 3 67

Mass Transfer
Fluid-bed mass transfer — Fluidization report. J. F. Frantz (charts).Sept. 17 164
Intermittent, countercurrent method in which one phase flows at a time (C) Oct. 1 35
Transport phenomena in mass transfer. Gill & Barduhn....Apr. 16 *167

Materials Handling
Bulk handling calls for improved distribution techniques — Profit squeeze report....Jan. 8 *86
Lube terminal blends, ships 2,000 grades (N)....May 28 *76
Oil cargoes—sensor optimizes pumping rate (N)....Apr. 16 *88
Pulp pipeline replaces paper plant railroad (N)....Feb. 19 *74
Safe unloading of liquid olefins and diolefins....May 28 *146
Specialty steels—in a hurry (N) Dec. 24 *42

Materials of Construction
Alloy for use in nuclear fuels reprocessing (C)....Apr. 16 78
Cooling towers—concrete, plastics displace wood in new projects (N) Sept. 17 *110
Copper for corrosion-resistant equipment. A. W. Tracy (table)...Jan. 22 *152
Cost-cutting via materials science—Profit squeeze report....Jan. 8 *94
Foamed polystyrene emerges as material of construction....Apr. 2 *66
Glassed steel resists corrosion. C. M. Knoll (charts) May 28 *150...June 11 *214
Graphite — low-permeability graphite. Revilock & Stambaugh (tables) June 25 *148
Insulating plastic joins polystyrene and polyethylene....Oct. 1 *64
Materials of Construction—20th biennial report (charts & tables). Norden & Hughson....Nov. 12 *185
Corrosion charts: guides to selection. R. K. Swandby....Nov. 12 186
Directory of manufacturers..Nov. 12 202
Inventory of current literature Nov. 12 224
Metallic foams....Mar. 5 *84
Nickel steel accepted by ASME for cryogenic service (C)....May 14 76
9% nickel steel for cryogenic use. J. D. Heffernan (charts & table)...Oct. 15 *210
Plastic foam bubbles into "instant" shelter....June 25 *80
Plastic windows accepted for New York City schools (C)....Nov. 26 47
Plastics — Factory-assembled buildings call for more plastics (table) (N) Sept. 3 *78
Plastics—Fire retardants: plastics' entree to building. Frances Arne (N) June 25 *62
Plastics in a processing plant..Mar. 19 *200
Plastics invade two more metal markets (N)....July 9 96
Polyurethane in 52-inch, calendered sheets (C) Oct. 29 58....Nov. 12 *108
PVC—major spurt coming for rigid PVC in construction (N)....Aug. 20 *62
Refractory metals. Jack Chelius (table) Dec. 10 178
Rocket casing materials vie for acceptance (C)....May 14 73
Silica fusion process cuts its cost for corrosion service (N)....Apr. 16 *90
Tedlar, fluorcarbon film, bids for construction role....Dec. 10 *86
Titanium consumptions grows as price drops (N)....Feb. 19 72
Titanium: where it stands (table) Apr. 16 *194
Urethane—sprayed urethane acts like rubber (C)....Nov. 26 52
Welded carbon steel heat exchanger tubing gains favor. H. F. Hinst (charts & tables)....Dec. 24 106

Mathematics
Hyperbola correlation: quick method for process evaluation. D. Th. A. Huibers....Aug. 20 *141
Mathematics review — CE Refresher. W. N. Gill (charts & tables) Apr. 30 *109, May 28 121, July 9 *145, Aug. 6 *125, Sept. 3 *131, Oct. 1 97, Oct. 15 189
Optimization. A. H. Boas (charts) Pt 1 What optimization is all about Dec. 10 *147
Reaction order—rapid method of estimating the order of chemical reactions. J. H. Flynn (tables)...Aug. 20 *137
Solving cubic equations. Jesse Rot. (P.N.)....Apr. 16 182
Statistics in chemical engineering—CE Refresher. L. B. Andersen (tables) Oct. 29 *119, Nov. 26 125.....Dec. 24 83
Measurements—Glass standpipe measures output volume of pump. J. H. Lewis (chart) (P.N.)....Aug. 6 *140
Menthol—Levo mentrol process developed by Glidden uses domestic supplies (N) Apr. 16 *80

Metallurgy
Alloy research aims at predicting properties from composition (N).Sept. 17 112
Blast-furnace output could be doubled with existing means, steel men say (C)....Apr. 30 54
Pig iron—pre-reduced pellets up blast furnace efficiency (C).....Oct. 1 40
Titanium forming and welding—methods, fabricators. R. V. Hughson Aug. 6 *150

Metals
Alloy for use in nuclear fuels reprocessing (C)....Apr. 16 78
Corrosion of film-forming metals. J. E. Draley Pt 1 Nov 12 *256, Pt 2.Nov. 26 *152
Czech process puts metal coating on plastics (C)....June 11 86
Dispersion process makes metals that withstand higher temperatures (C) July 9 73
Corrosion inhibitor checklist (table). Maxey Brooke....Feb. 5 134
Demet process removes metal poisons from cracking catalysts (C)..June 11 83
Foams—metallic foams....Mar. 5 *84
Inventory—semiannual inventory of new plants and facilities....Apr. 16 158, Oct. 29 112
Inventory—semiannual inventory of new processes and technology Jan. 22 134
Inventory—13th inventory of new processes and technology....Aug. 6 117
Refractory metals—understanding tantalum, columbium, molybdenum, tungsten. Jack Chelius (table) Dec. 10 178
Silicone coating, called Ucar, prevents tarnish, corrosion....Aug. 6 *82
Meters—Centrifugal flow meter can be made from full-circle pipe bend (P. N.)....Mar. 19 *188

Methane
Liquid methane less hazardous than gasoline, tests show (C).....Mar. 19 78
Shipping—subzero shipping opens new horizons (table) (map) (N)..Aug. 6 *64
U. K. okays natural gas lift from Africa (map) (N)....Jan. 8 46
Methanol—Temperature-entropy diagram for methanol. William Shulman (P. N.)....Feb. 19 *144
Methylacetylene industrial gas, called Mapp....Jan. 22 80
Methylamines — Dimethylamine yield boosted in Belgian plant's new process (chart) (N)....Oct. 29 *70
Methyl Chloride—Ancon Chemical makes big entry with Lake Charles, La., plant—end-uses (N)....July 23 *72

Mexico
Catacarb gas-scrubbing process gets its first commercial unit (C)....Sept. 3 65, (Chart) (N)....Nov. 26 60
Drug-maker builds pillbox-shaped plant (N)....Nov. 12 *100
Mexican-American enterprises—an insider's viewpoint. Eliot Camarena May 14 *178
Petrochemical industry at takeoff point (C)....May 14 78
Mills—Crushing and grinding guide—report. A. L. Stern....Dec. 10 139

NOTES—*Illustrated; (C) Chementator; (N) News; (P. N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Mining
Chemical treatment opens way to Canada's huge potash deposits (C) May 28 70
Deep freeze clears way to bayou salt dome (N) ....Oct. 1 *52
Mixing—Scale-up of liquid-mixing systems. F. A. Holland (charts & tables) ....Sept. 17 *179
Molding
Blow-molded bottles win solid footing for linear polyethylene (N)..Apr. 16 *82
Injection molding pushes into rubber (N) ....Oct. 1 *48
Missile liners—huge press cures synthetic-rubber insulators (N)..Oct. 1 *54
Polysulfide rubber gives sculpture an assist (N) ....Dec. 10 *82
Molecular Sieves
Adsorbent treats acidic streams continuously ....Feb. 5 60
Isosiv process reduces cost of producing n-paraffins (N) (chart & tables) Apr. 30 58
New sieves are more adsorptive and crush-resistant ....Mar. 5 80
Norton's new molecular sieve..Apr. 30 *78
Momentum transfer—Design for fluidization report. J. F. Frantz (charts) Sept. 17 165
Monomers
Acrylic monomers ....Oct. 15 98
Trifunctional monomer ....Oct. 15 100
Monosodium Glutamate
Fermentation process produces low-cost MSG from wheat starch (C) Jan. 22 64
IMC switches to fermentation process (C) ....Mar. 19 76
Patent infringement suit hits Commercial Solvents process (C)....Mar. 19 76
Motors—Corrosion barrier—encapsulation method protects electric motors Sept. 17 *212

N

Naphtha
Chemico's new process for converting naphtha to synthesis gas (C)..Oct. 1 40
Steam-reforming processes developed by Chemico, others, move ahead (chart) (N) ....Nov. 12 *96
Naphthalene—HDA process at new Sun Oil plant boasts feedstock flexibility (chart) (N) ....Oct. 15 *80
Naphthalic acid anhydride—German plant tries new route: vapor-phase oxidation (C) ....Jan. 8 33
Natural Gas
Canadian Industries' ammonia plant switches to natural gas feedstock (C) ....May 14 73
Dutch discovery may make Holland Europe's largest supplier (C).Nov. 12 79
Inventory—semiannual inventory of new plants and facilities....Apr. 16 161, Oct. 29 114
Inventory—semiannual inventory of new processes and technology Jan. 22 136
Inventory—13th inventory of new processes and technology....Aug. 6 120
Sweetening—Amine treating of sour gas: good riddance to H_2S—flowsheet. Peter Brennan ....Oct. 29 *94
U. K. stamps O. K. on gas lift from Africa (map) (N)....Jan. 8 46
Neoprene—Coating of neoprene checks cooling-tower decay (N)....Sept. 3 *76
Netherlands
Gas discovery may make Holland Europe's largest supplier (C).Nov. 12 79
U. S.-Dutch joint venture will export plastics to U. S. (N)....Oct. 15 92
Nickel—TD Nickel—Du Pont's high-temp metal (C) ....July 9 73
Nitration—new continuous route copes with slurries, viscous fluids (C) May 14 71
Nitric Acid
German design recoups heat in nitric acid plants—flowsheet. T. P. Forbath Dec. 24 64
Nitrophosphate fertilizers—PEC process at California Chemical's new Iowa plant promises profits (N) Dec. 10 *68
TVA invites bids on plant designed to produce 65-70% acid (C)....Feb. 5 33
TVA's low bidder on proposed plants at Muscle Shoals, Ala. is Chemical Construction Corp. (C)....Dec. 10 58
Nitrogen
More food means more nitrogen needed —production, consumption, prices. S. Strelzoff (tables) (N)....Feb. 5 *44
Nitrogen pipelines add to Houston Ship Channel maze (map) (C)....Feb. 19 57
Pittsburgh Plate Glass and Nederlandsche Staatsmijnen form Columbia Nitrogen Corp. to build fertilizer complex at Augusta, Ga. (C).Sept. 17 89
Nylon
Chemical reconstitution gains commercial support (C)....Jan. 8 38
Du Pont to concentrate on nylon tire cord (C)....Nov. 12 81, (C) Nov. 26 45
Du Pont to produce new nylon tire cord (C) ....Dec. 24 26
Monomer casting of nylon 6 opens new vistas (C) ....Apr. 2 85
Photochemistry reduces cost of caprolactam (chart) (N)....Mar. 5 72

O

Oils and Fats
Processing oils ....Sept. 17 118
Shale oil plant in Colorado may be operated as student training center (C) ....Nov. 26 50
Tall-oil unit will give horizontal distillation method commercial try (C) June 25 58
Olefins
Alpha-olefins—two new producers bid for biodegradable detergents markets (C) ....Sept. 17 89
Alfene alpha-olefin process on stream soon at Conoco's Lake Charles, La., plant (chart) (N)....Aug. 6 68
Alfene olefins—Conoco process uses ethylene feedstock to make alpha-olefins (C) ....June 11 83
Ultrafenes—new linear olefins made by Atlantic Refining (C)....Dec. 10 60
Operations Research
Decision-making—symposium on new techniques. J. F. Moore (moderator) (charts) ....June 25 *107
"Monte Carlo" or probability technique of operations research. E. S. Aldredge ....June 25 *109
Critical-path planning and scheduling. Walter Cosinuke....June 25 *113
Linear-programmed simulation for the small plant. E. P. Earle June 25 *118
Dynamic programming—an introduction. S. M. Roberts....June 25 *121
Operations engineering can conserve your production dollars. J. H. Riddle June 25 *140
Process simulation can improve plant operations. Armstrong & Olson (charts) ....Sept. 3 *135
Optics—Fiber optics lets high-speed camera "stop" chemical reactions (C) Nov. 12 81
Optimization
Analog simulation for optimizing batch-continuous systems. J. K. Munson (charts) ....July 9 *139
Decision-making—symposium on new techniques (charts) ....June 25 *107
Engineering attacks the profit squeeze —report ....Jan. 8 *83
How to solve optimization problems. Lewis Iscol ....Feb. 19 *107
Optimization. A. H. Boas (charts)
1. What optimization is all about Dec. 10 *147
Simulation—improving operations via process simulation. Armstrong & Olson (charts) ....Sept. 3 *135
Organic Chemicals
Inventory—semiannual inventory of new plants and facilities....Apr. 16 158, Oct. 29 113
Inventory—semiannual inventory of new processes and technology.Jan. 22 131
Inventory—13th inventory of new processes and technology....Aug. 6 117
Oxidation
Acetic acid via oxidation of light hydrocarbons unveiled in England (C) Dec. 10 58
Adipic acid via air oxidation of cyclohexane (C) ....June 11 86
Liquid-phase oxidation may streamline zinc production (C) Apr. 30 54, (C) May 28 63
Phenol-from-cumene oxidation process, called Unisir (C)....Feb. 5 38
Phenol via air oxidation of benzene—process to get Monsanto plant in Australia (C) ....June 11 86
Vapor-phase oxidation gets tryout in production of dye intermediate (C) Jan. 8 33
Oxides—Corrosion of film-forming metals. J. E. Draley....Pt. 1 Nov. 12 *256, Pt. 2 Nov. 26 *152
Oxo Alcohol—Aldox process—Humble plant at Baton Rouge, La. (C) May 28 70, (N) June 25 *78
Oxygen
Consumption up in steel and chemical industries (N) ....Mar. 19 94
Fractionation tower readied for huge oxygen plant (N)....Oct. 15 *94
Onsite oxygen plant makes British debut (N) ....June 11 *104
Oxygen pipelines add to Houston Ship Channel maze (map) (C)....Feb. 19 57
Oxygen plant ups Ford steel capacity (N) ....July 9 *86
Steelmaking via oxygen-lance process may sour demand (C)....July 23 55
Ozone—bottled ozone becomes a reality in France (C)....Dec. 10 60

P

Pacific Energy Conversion Conference—Fuel cell commercialization still far off (C) ....Sept. 3 65
Packaging—AirCap, featherweight polyethylene, cuts shipping costs Aug 20 80
Paints
Economics of industrial painting. R. K. Swandby (charts & tables)
Pt 1 How to reduce maintenance painting costs....Apr. 30 115
Pt. 2 How to analyze costs of painting a new plant....May 28 *115
Pt. 3 Getting your money's worth from paint testing....June 11 191
Foaming paints offer protection from high-temperatures....Jan. 8 60
Japanese paint, called Gamma Solvent, withstands flame, high heat (C) June 26 55, (C) ....Sept. 3 *67
Latex maintenance paints boast acrylic binder ....Dec. 24 *48
Paint vehicle—water soluble alkyd resin ....Feb. 5 60
Surfactant—additive improves gloss and hiding power....Sept 3 96
Vinyl maleate copolymer emulsion—new house-paint vehicle....Dec. 24 48
Paper
Computers—can they help papermen? (C) ....May 28 65
Inverform process speeds sheet formation (N) ....Apr. 16 86
Outlook for 1962 (N)....Feb. 5 43
Scott Paper mill's new waste treatment cuts discharge into river (N) Jan. 8 42
Starch additive strengthens paper July 23 82
Steel from Armco to win papermaking outlet? (N) ....Sept. 3 *86
Paraffins
Isoparaffins ....Apr. 30 76
Molecular sieving reduces cost of producing n-paraffins (charts & tables) (N) ....Apr. 30 58
Particles
Better control of particle sizes. William Shulman (tables)....Sept. 3 *129
Chart sums up characteristics of fine particles. C. E. Lapple (P. N.) June 11 206
Patents
Bayer-Du Pont polyurethane foam dispute—Japanese agency rules for Bayer (C) ....Aug 6 60
Celanese's new polyacetal patent spices legal hassle (C)....Apr. 16 71
Chemical patents indexed on magnetic tape for quick searches (C)..Mar. 5 60
Don't lose a patent by premature use. A. W. Gray....Jan. 8 *117
General Tire wins patent interference case against Mobay Chemical (C) Apr. 30 54
Merck employee in turnabout of drug theft case (C)....Dec. 24 22
MSG fermentation process center of patent infringement suit (C).Mar. 19 76
Phenol-from-cumene infringement suit in Italy could affect U. S. firms (C) June 25 53
Polypropylene—Du Pont catalyst patent stirs polypropylene producers (C) Sept. 3 72
Polypropylene makers ponder Hercules, Du Pont patents (C)....Sept. 17 89
Polypropylene muddle grows—Montecatini gets Canadian patent; Eastman Kodak claims no infringement (C) Oct. 15 73
Polypropylene process licensing gets even more tangled (C)....Jan. 22 66
Supranational patent system shapes up in Europe (N)....May 28 86
Trademark search—new computer-based service (N)....Dec. 10 72
Pesticides use gets international attention (N) ....Dec. 24 44
Petrochemicals
Alfene olefins—Conoco's alpha-olefin process uses ethylene feedstock (C) June 11 83
Alfene olefin process on stream soon at Conoco's Lake Charles, La. plant (chart) (N)....Aug. 6 68
Conference on Managing Petroleum and Petrochemical Operations—for papers presented see Managing petrochemical operations
Dodecylbenzene and dodecylbenzyl chloride production at Conoco—flowsheet May 15 *150
Managing petrochemical operations
Community relations for the plant not yet built. McKee & Harmon Apr. 30 101
Dealing with absentee management. T. T. Chase....May 14 173
Long-range planning in markets and technology. Edward Tarnell May 28 127
Make the most of engineering talent. D. J. Cestoni....May 28 131
Mexican-American enterprises—an insider's view. Elliot Camarena May 14 *178
New tools for decision-making—a symposium (charts)....June 25 *107
Organizing, staffing and maintaining in-plant technical departments. J. M. Leathers (chart)....May 14 *185
Public-relations program for the established plant. V. J. McCoy June 11 187
Mexico reported at takeoff point in petrochemicals (C)....May 14 78
Monsanto's Chocolate Bayou complex hoists biggest column (N)..Mar 5 *78
Montecatini complex at Brindisi, Italy, on stream (N)....May 14 *94
Producers seek share in crude import quotas (C) Apr. 2 33, (C)..Apr. 30 51
Spain moves to boost lagging petrochemicals (N)....July 23 64
Petroleum
British oil man fears impact of Russian import (N)....June 25 78
Canada's Athabasca tar sands rights go to Great Canadian (C)....Oct. 15 71
Canadian tar sands—bid battles continue (C) ....July 9 75

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Cat crackers use latest gas-turbine tricks (chart) (N).....Aug. 22 *74
Catalyst-treating processes—Met-X and Demet processes counteract metal poisons. R. J. Bender (chart & table) (N).....July 23 *66
Chemicals prime the pump for oil producers (table) (N).....Feb. 19 *68
Cracking catalyst called Durabead 5 (C).....May 28 70
Demet process removes metal poisons from cracking catalysts (C)..June 11 83
HCl additive hikes production of oil wells.....June 11 108
Hypro cracking process cleaves hydrogen from hydrocarbons (C) Apr. 30 49, (Chart) (N) May 14 *90, (C) June 11 *88
Inventory — semiannual inventory of new plants and facilities Apr. 16 161, Oct. 29 114
Inventory — semiannual inventory of new processes and technology Jan. 22 136
Inventory—13th inventory of new processes and technology.....Aug. 6 120
Isocracking process bolsters gasoline yield—flowsheet.....July 9 *118
Isomax process to be used in Canadian Oil plant (C).....June 11 86
Mulch—petroleum mulch sends crop yields upward (table).....May 28 *90
Oil import quotas sought by petrochemical producers (C) Apr. 2 33, (C).....Apr. 30 51
Outlook for 1962 (N).....Feb. 5 43
Re-refining squeezes pure lubes from waste oils—flowsheet. B. Cross June 11 *126
Soviet Bloc oil surges in world markets (N).....Dec. 24 *30
Soviet breakthrough in oil-well turbodrilling (N).....June 11 104
Television peers to the bottom of an oil well (N).....Sept. 17 *114
Universities and the oil companies (QED).....Dec. 10 207

Phenol

Air oxidation of benzene—new process for making phenol gets Australian plant (C).....June 11 86
Alkyl phenols.....Oct. 15 102
Hooker licenses modified Raschig process to Japanese firms (C)....June 25 55
Northwest Petrochemical process leads to expanded output (chart) (N) Aug. 20 *66
Patent suit in Italy could affect U. S. phenol-from-cumene plants (C) June 25 53
Soviet increases phenol-from-cumene yield via waste-reprocessing treatment (C).....Oct. 29 60
Unisir, new phenol-from-cumene oxidation process (C).....Feb. 5 38

Phosphate

Magnesium ammonium phosphate fertilizer called MagAmp.....July 23 80
Nitrophosphate fertilizers—PEC process at California Chemical's new Iowa plant promises profits (N) Dec. 10 *68
North Carolina underwriter deposits lure developers (C) Feb. 19-62, (C) May 28 63, (C) July 23 53, (C) Aug. 20 53
Underwriter prospectors seek new phosphate deposits (C).....Feb. 19 62

Phosphoric Acid

Israelis pioneer HCl-based route to high-grade phosphoric acid (C) June 11 88
Israeli process — hydrochloric-based route gets plants in U. S., Japan (C) Dec. 10 55, (Chart) (N) Dec. 24 *34
Phosphoric acid's vigor spurs optimizing efforts — producers, capacity (chart & table) (N).....May 28 *72
Superphosphoric acid gets boost with TVA's stainless steel unit (N) Oct. 1 *58
Vacuum process puts the "super" in superphosphoric acid (C)....June 25 53
Photochemistry reduces cost of caprolactam (chart).....Mar. 5 72

Photography

Aerial infrared and color photos spot industrial water pollution. Bruce Cross (N).....Apr. 2 *42
Camera, using fiber optics, "stops" chemical reactions (C).....Nov. 12 81
Photos made with radioisotopes permit on-stream inspection of pipes and valves. P. J. Brennan.....Oct. 29 *140

Phthalic Anhydride

British producers seek protection from German dumping (N).....Oct. 1 52
Feedstock appraisal—Witco pits naphthalene vs. o-xylene in side-by-side units (C).....June 11 81
Fluid-bed phthalic anhydride—flowsheet.....Jan. 22 *104
O-xylene as feedstock—tests near verdict (C).....Mar. 5 53
Von Heyden process from Germany makes o-xylene look even better. T. P. Forbath (chart) (N)..Sept. 17 *98
Pickling — hydrochloric acid pickling process debuts at McLouth Steel (C) Dec. 10 53

Pigments

Cadmium pigments stable to 750° Aug. 20 80
Cadmium-mercury pigments...June 11 112
Shifting needs, source tinge pigment future. Frances Arne (charts & tables) (N).....July 9 *82
Titanium dioxide technology keeps pace with competition (chart & table) (N).....July 23 62

Pipes

Aluminum pipe wins bigger role in oil-well drilling (N).....Apr. 2 *56
Built-in spreader for large-diameter flanges. H. G. Knapp (P. N.) Dec. 24 *98
Calculation form for pipe-branch reinforcements. Lester Robbins (tables) (P. N.).....Nov. 26 *142
Cleaning pipelines — Chemistry in maintenance report. C. M. Loucks (chart).....Mar. 5 112
Coal pipeline to supply Eastern utilities clears legislative hurdle (C) Mar. 5 55
Coating for steel pipe cures within 20 seconds (N).....Apr. 16 *92
Epoxy resins seal threaded pipe joints. L. R. Lyons (P. N.).....Aug. 6 144
Fluoroscopic testing system continuously inspects steel pipe (C) Dec. 10 55
Glass-fiber reinforced plastic pipe. L. J. Geiger
Pt 1 Types, properties.....Aug. 20 *160
Pt 2 Uses, advantages, economic comparison with metal (table) Sept. 3 162
Maintenance wades in to keep plant on stream.....Oct. 15 *204
Nomograph finds lengths of tubular-flow reactors. William Shulman (P. N.).....Oct. 29 138
Nomograph gives equivalent lengths of orifices. V. T. Sinha (P. N.)..Oct. 29 134
Pipelines for oxygen and nitrogen add to Houston Ship Channel maze (map) (C).....Feb. 19 57
Pipeline replaces railroad as pulp mover (N).....Feb. 19 *74
Piping installation—an accurate way to estimate costs. C. J. Keating (tables).....June 25 125
Plastic—code to boost plastic pipe use (N).....Nov. 26 62
Plastic — factory-assembled buildings call for more plastics (N)....Sept. 3 *78
Plastic-lined pipe—dry coating processes promise better pipe (C) Feb. 19 60
Plastic-pipe industry adopts diameter, pressure standards (N).....Apr. 2 54
Plastic tape protects pipe.....May 14 *210
Polyacetal producers seek additional pipe markets (C).....Mar. 19 76
Radioisotopes permit routine inspection of valves and piping. P. J. Brennan Oct. 29 *140
Robot inspector finds flaws in steel pipe (N).....Apr. 16 94
Scale-up of fluid-flow systems. F. A. Holland (charts & tables)....Dec. 24 71
Steel pipe, called In-Ter-Line, has internal plastic coating (C)....Apr.16 71
SunOlin completes pipelines linking Delaware and New Jersey (N) Jan. 8 *44

Plant Construction see **Construction**

Plant Notebook

Adjustable restriction accurately controls flow. W. H. Gries.....Oct. 1 *114
Air leaks can stop conveyors. K. H. Parekh.....May 14 200
Automatic breathing system for inert gas enclosure. J. T. Fordham (chart).....July 9 *158
Automatic sampling device. F. J. Mulholland.....Nov. 26 *142
Automatic sampling device has no moving parts. W. H. Yates..Feb. 19 *142
Automatic vent maintains flow through condenser. M. G. Campagne..Apr. 16 *180
Bin shaker operates temporary vibrating screen. R. E. Leonard....May 14 *198
Built-in spreader for large-diameter flanges. H. G. Knapp.....Dec. 24 *98
Calculation form for pipe-branch reinforcement. Lester Robbins (tables) Nov. 26 *142
Chart correlates required NSPH with type of pump. V. J. Mill.....Apr. 6 *182
Chart finds flow parameter for bubble-cap column. H. M. Jones....Jan. 22 148
Chart finds lengths of tubular-flow reactors. William Shulman...Oct. 29 *138
Chart finds "lost volume" in cylindrical storage bins. A. Vaillant Feb. 19 *148
Charts find volume of gas for heating coke ovens. V. S. Gupta.....Apr. 16 *184
Chart gives flash fraction in binary feed streams. B. S. Wright...Aug. 6 *142
Cold water helps control interface in pulp mill.....Apr. 16 *186
Continuous absorption removes acid fumes. Allen & Cooper.....Nov. 26 *144
Control-valve damping reduces fluctuations. W. T. Klapper (chart).Aug. 6 138
Convenient laboratory temperature standard. H. S. Myers.....Mar. 19 *192
A cycle counter for zone-refining systems. D. L. Gumprecht.....Nov. 26 *140
Design charts. E. J. Gibbons Jan. 22-150, Feb. 19-146, Mar. 19-192, Apr. 16-182, May 14-200.....July 9 160
Determining first guess in dew and bubble points. B. S. Wright...July 9 160
Device amplifies signal to recorder. Gomezplata & Marsheck ....Oct. 1 *116
Epoxy resins seal threaded pipe joints. L. R. Lyons.....Aug. 6 144
Full-circle pipe bend makes centrifugal flow meter .....Mar. 19 *188
Generalized equation speeds batch distillation design. H. L. Glotzer May 14 *202
Glass standpipe measures output volume of pump. J. H. Lewis (chart) Aug. 6 140
High-precision level device uses radioisotope. Osborn & Allen.....Jan. 22 *144
"Home-made" device gives fast pressure readings. W. L. Gross...Feb. 19 *148
Homemade triangles speed distillation column design. Martin Kladko Aug. 6 *140
How to size control valves for high viscosities. B. G. Liptak.....Dec. 24 95
Improved equation to estimate liquid densities. S. H. Fishtine....Sept. 3 154
A laboratory-size glass thermosyphon reboiler. H. A. Suter.....June 11 *204
A large impeller for small-necked laboratory flasks. A. W. Billitzer Oct. 29 *136
A level indicator for liquid sodium vessels. R. E. Leonard.....Oct. 29 *134
A liquid divider for batch distillation columns. W. J. Kelley.....Sept. 3 *154
A low-cost air-operated alarm system. Hamill & Hessmann.....Sept. 3 *152
New equation correlates transport properties. P. N. Srinivasa Rao & others (table).....May 14 *198
Nomograph gives equivalent lengths of orifices. V. T. Sinha.....Oct. 29 134
One-page chart sums up characteristics of fine particles. C. E. Lapple (chart).....June 11 206
Physical properties of ammonia. A. M. P. Tans (chart).....July 9 162
Physical properties of ethylene glycol. W. S. Shulman (charts & table) Oct. 1 118
Plastic "swimmer arm" keeps sediment out of pump suction. Aatos Eskelinen.....Oct. 1 *118
Rating chart helps choose the best extractor. D. B. Todd (chart & table).....July 9 156
Semiautomatic level control for wet pressure gas meters. W. H. Gries Dec. 24 97
A simple vent for liquid heating systems. H. J. Digeser (chart)..Oct. 29 132
Simple device for testing thermoelectric elements. S. H. Teller...June 11 *204
Simple method finds logarithmic means value. Hans Huesler.....Aug. 6 *144
Simple shower spray prevents dirt accumulation. Rene Schneider..Mar. 19 *188
Slide-rule calculation gives steam's heat of vaporization. Sidney Kravitz (table) (P.N.).....June 11 206
Slotted fixtures throw more light on plant operations.....May 14 *204
Solving cubic equations. Jesse Roth Apr. 16 182
"Spare parts" make an accurate tachometer. Gomezplata & Marsheck Mar. 19 *190
Spray disk disperses slugs from injector pump. A. W. Billitzer..Jan. 22 *146
Steam-trap level controller foils wintry blasts. Martin Kladko.....June 11 *202
Straight lines find plates in a fractionator. Diab & Haruni....Apr. 16 *178
Temperature-compensated distillation column. Oliver & Sprague...Sept. 3 *150
Temperature-entropy diagram for methanol. William Shulman..Feb. 19 *144
Test your CEQ. Robert Lemlich. Jan. 22-148, Feb. 19-144, Mar. 19-190, Apr. 16-180, May 14-200, June 11-204 July 9-158, Aug. 6-140, Sept. 3-152, Oct. 29-134, Nov. 26-142.....Dec. 24 96
Thermal conductivity of gases and vapors. William Shulman....Sept. 3 *152
Vents reduce resistance of cyclone separators. S. R. Faktorowitsch Feb. 19 *140
"Waste farm" takes care of phenolic waste disposal. S. B. Hettig..Dec. 24 *96
Water content of nitrogen and oxygen at low temperature. J. D. Constance (chart).....Oct. 1 *120

Plants

APCO Oil Corp.'s hydrocracking unit in Arkansas City, Kan., on stream (N).....Nov. 12 *104
British firm on stream with first units of chemical complex (N).....Oct. 1 *56
CE Cost File 72—Nomograph gives equipment and plant costs. Winfield & Dryden.....Dec. 24 100
Cities Service Petroleum new naphthalene plant in E. Chicago, Ind. (N).....Nov. 12 *104
Computer guides design of chlorination pilot plant (C).....Jan. 8 33
Desalting plant at Point Loma, Calif. (N).....Apr. 16 *94
Drug-making plant shaped like a pillbox (N).....Nov. 12 *100
Evaluating the proposed plant. Robert Frumerman (charts & tables).Oct. 1 101
German-designed oxygen plant ups Ford steel capacity (N).....July 9 *86
International Minerals & Chemical potash project in Canada (N).Oct. 29 *78
Inventory—semiannual inventory of new plants and facilities Apr. 16-155 Oct. 29 111
Japanese cement plant designed and built around computer system (N) Apr. 30 59
Monsanto's new Chocolate Bayou, Tex., plant will not be computer-controlled (C).....Dec. 24 26

NOTES—*Illustrated; (C) Chementator; (N) News; (P. N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Onsite oxygen plant makes British debut (N) ....June 11 *104
Pacific G&E plant's safety device cuts nuclear power cost (N)....June 11 *106
"Packaged" plants spark overseas buildups (N) ....Dec. 10 74
Painting—How to analyze costs of painting a new plant. R. K. Swandgy (tables) ....May 28 *115
Profitable plants: design, construction and operation. Robert Frumerman Apr. 16 133
Refineria Panama's Payardi Island plant on stream (N) ....May 28 *88
Refinery for Libya built on concrete barge in Belgium (C) Mar. 19-71, (C) Oct. 15-71 (N) ....Dec. 10 *76
State of Washington seeks to keep federal plant operable (N)....Oct. 1 54
Turkey and Peru open new oil refineries (N) ....Nov. 26 *70

Plasticizers
Epoxidized vegetable oil stabilizers vinyl plastics ....Sept. 3 *94
New plasticizers for PVC, nitrocellulose, acrylics ....Mar. 5 82
ABS plastics array via three polymerization lines—flowsheet..Sept. 17 *154
Bottle and container markets to gulp more plastics—new developments (C) ....Dec. 10 55
Celanese's new patent spices polyacetal legal hassle (C) ....Apr. 16 71
Coating—Plastic coating in fluidized beds. R. K. Levan....July 9 *170
Construction—factory-assembled buildings call for more plastics (table) (N) ....Sept. 3 *78
Cooling towers switch to non-wooden construction materials (N)..Sept. 17 *110
Extrusion machine produces glass-reinforced plastic shapes automatically (C) ....Aug. 20 58
Filament winding technique adapted to glass-reinforced plastic moldings (C) ....Apr. 2 40
Fire retardants: plastics' entree to building. Frances Arne (N)..June 25 *62
Flame-resistance testing of plastics. Feuer & Torres ....Apr. 2 *138
Insulating material joins polystyrene and polyethylene ....Oct. 1 *64
Inventory—semiannual inventory of new plants and facilities Apr. 16-163, Oct. 29 116
Inventory—semiannual inventory of new processes and technology Jan. 22 135
Inventory—13th inventory of new processes and technology....Aug. 6 121
Metal coating bonded to plastics by new Czech process (C)....June 11 86
Outlook for 1962 (N)....Feb. 5 42
Pennsalt enter plastics with new pyrolitic TFE process and new PVF, called Kynar (charts) (N)...Mar. 19 *80
Pipe—code to boost plastic pipe use (N) ....Nov. 26 62
Pipe—glass-fiber reinforced plastic pipe. L. J. Geiger Pt 1 Aug. 20-*160, Pt. 2 Sept. 3 162
Pipe industry adopts diameter, pressure standards (N) ....Apr. 2 54
Pipe—polyacetal pipe producers seek new markets (C) ....Mar. 19 76
Plastic coating lines steel pipe called In-Ter-Line (C) ....Apr. 16 71
Plastic equipment solves problems in Monsanto processing plant...Mar. 19 *200
Plastic-lined pipe—dry coating processes promise better pipe (C)..Feb. 19 60
Plastics invade two more metal markets (N) ....July 9 96
Polyarylates—Soviets report progress in developing polyarylate compounds (C) ....Sept. 3 72
Polybutene development — Petro-Tex faces major decision (C)....Sept. 17 91
Polyurethane enters plastic sheeting market (C) ....Oct. 29-58, Nov. 12 *108
PVC—major spurt coming in construction (N) ....Aug. 20 *62
PVC plastisols via new German route (N) ....Feb. 5 *56
PVC tape protects pipe from corrosive attack ....May 14 *214
Self-lubricating epoxy plastic...Dec. 24 48
Tedlar, fluorocarbon film, bids for construction role ....Dec. 10 *86
Toluene-based thermosetting resin developed in Japan (C)....June 11 81
U. S. plastics firm will export—to U.S. (N) ....Oct. 15 92
Windows of plastic okayed for New York City schools (C)....Nov. 26 47
Plutonium—New ion-exchange setup wins in plutonium processing (chart) (N) Apr. 2 *44
Polybutadiene—Trans-polybutadiene via rhodium-salt catalyst system (C) Feb. 19 55

Polybutene
Amoco uses polybutene unit to make liquid propylene polymers (N)..Mar. 5 64
Petro-Tex faces major decision on polybutene (C) ....Sept. 17 91
Polycarbonates—Fiber next step for polycarbonates? ....Sept. 17 *108

Polyesters
Coating ....Feb. 19 82
Resin has high resistance to chemical corrosion ....Apr. 30 76

Polyethers
New polyether makes super-soft urethane foams ....July 9 102
Penton—plastic coating in fluidized beds. R. K. Levan....July 9 *170
Polyether-silicone copolymers: key to better products ....Apr. 2 *62

Polyethylene
Contract processing wins Enjay, new polyethylene marketer (C)...Apr. 16 73
Du Pont of Canada process turns out both low and high densities (C) Mar. 19 71
Film-grade resins for packaging applications ....Dec. 24 50
Granules offer improved chromatographic properties ....Apr. 16 98
Linear polyethylene gets new Monsanto plant (C) ....Apr. 2 33
Linear polyethylene takes hold via blow-molded bottles — consumption, capacity, outlook (N) ....Apr. 16 *82
New grades available ....Feb. 19 84
Packaging material called AirCap Aug. 20 80
Rexall-El Paso high-pressure plant at Odessa, Tex., on stream (C) Mar. 5-58 (N) ....Mar. 19 *96
Tar tape for pipe....Apr. 16 *102

Polymerization
ABS plastics array via three polymerization lines—flowsheet ..Sept. 17 *154
Alfol alcohols via unique ethylene polymerization process (chart) (N) May 14 *80
Conoco adds carbon black to linear polyethylene by in situ polymerization (C) ....Apr. 16 78
Insulating films formed on surfaces by polymerization of organic gases (C) Nov. 26 50
Low-temperature nylon-6 polymerization opens new vistas (C)....Apr. 2 35
Pennsalt's pyrolysis heats up fluorocarbon-polymer contest (charts) (N) ....Mar. 19 *80
Stereospecific catalysis: new dimension in polymerization—report. Eugene Guccione (charts & tables)....Apr. 2 *93
Suspension polymerization—new route to PVC plastisols (N) ....Feb. 5 *56
Wool shrinkage reduced by polymerization process called Wurlanizing (C) ....Aug. 6 55

Polymers
Doryl—new diphenyl oxide polymer from Westinghouse debuts as electrical insulation ....Oct. 29 *80
Irradiation before forming enhances properties (C) ....Sept. 3 70
Irridation, luminescence play roles in new polymer techniques (N)..Oct. 15 90
Phenoxy—new polymer, made from epoxy chemicals, is thermoplastic Nov. 26 *72
"Polyallomers" — Eastman Chemical's new family of copolymers (C) Jan. 22 66
Polymer Symposium presented by American Chemical Society (C) July 9 78
Polymeric flocculants ....Feb. 5 60
Stereopolymers benefit from new catalyst stabilization process (C) Sept. 17 96
Stereopolymers: what, why, how—report. Eugene Guccione (charts & tables) ....Apr. 2 *93
Polyphenyl ether—vacuum pump fluid Aug. 6 86

Polypropylene
Dyes for polypropylene fibers developed by Allied (C)..Apr 2-40, (C) June 25 55
Dye—Japanese firm announces dispersion dye for unmodified polypropylene fiber (C) ....Apr. 16 76
Dyeable polypropylene fiber claimed by Montcatini (C) ....Feb. 5 35
Dyeable polypropylene fiber offered commercially by Beaunit (C)..Apr. 2 40
Liquid polypropylene ....Mar. 19 100
Patents stir producers—Du Pont patent (C) ....Sept. 3 72
Hercules, Du Pont patents (C) Sept. 17 89
Patent tangle grows—Montecatini's Canadian patent; Eastman Kodak's no-infringement claim (C)...Oct. 15 73
StanCal entry further tangles process licensing (C) ....Jan. 22 66

Polystyrene
Expanded polystyrene, Dyna-Foam, threatens paper ....Jan. 8 58
Foamed polystyrene for insulated building panels ....Apr. 2 *66

Polyurethane
Foams see under **Foams**
Sheets—52-inch, calendered sheeting called Seilon UR (C) Oct. 20-58, Nov. 12 *108
Spandex demand spurs rush of new producers (C) ....Feb. 19 60
Sprayed urethane acts like rubber (C) ....Nov. 26 52
Viton and millable gums bid for rubber's sealing jobs (C)....Aug. 20 58

Potash
Canada—IMC's chemical treatment unlocks huge source (C)....May 28 70
Canada—IMC's huge mine comes in (N) ....July 23 76
Canada—IMC's new plant fed by world's largest supply—flowsheet. Bruce Cross ....Nov. 12 *176
Canada—Potash Co. of America moves to restore its water-soaked Saskatchewan mine (C) ....Aug. 20 60
Carlsbad, N. M., ores get new profitable beneficiation process (C)....June 25 58

Powder Metallurgy
Beryllium-copper powder yields high-strength parts ....Aug. 6 84
Nickel-coated phosphorus and graphite powders ....Oct. 1 *66
Powders—nickel-coated phosphorus and graphite powders ....Oct. 1 *66
Precipitator—inverted cone filled with sponge iron recovers copper from water (C) ....Nov. 12 84
Press—Curing press produces synthetic-rubber missile liners (N)....Oct. 1 *54

Pressure
Automatic vent maintains flow through condenser. M. G. Champagne (P. N.) ....Apr. 16 *180
Bubble-cap pressure drop. Francis Van Hecke (charts & tables)....Nov. 12 233
The challenge of higher pressures—report. F. W. Wilson (chart)..Oct. 15 *159
Designing a high-pressure laboratory. Stenberg & Coffey (charts)..Nov. 26 *115
Gas compression—compressor calculations for nonideal gases. D. M. Church Pt 1 Mar. 5 *127, Pt 2 Mar. 19 *167, Pt 3....Apr. 2 *117
High-pressure naphtha reforming moves ahead (chart) (N)....Nov. 12 *96
"Home-made" device gives fast pressure readings. W. L. Gross (P.N.) Feb. 19 *148
Navy gun serves as pressure vessel to mold aerospace parts (N)...Dec. 10 *72
Overpressure and attendant hazards of industrial steam turbines and air cooled heat exchangers (QED) Nov. 12 336
Pane relievers vent explosive popoffs (N) ....Jan. 22 *70
Pressure drop in vapor-relief systems. R. & W. Missen (chart)....Oct. 29 *101
Pressure relief—emergency venting for tanks and reactors. Benjamin Block (charts & tables) ....Jan. 22 *111
Process evaluation—hyperbola correlation offers quick simple mthod. D.Th. A. Huibers ....Aug. 20 *141

Production—Operations engineering can conserve your production dollars. J. H. Riddle ....June 25 *140

Propylene
British process uses propylene as raw material for acrylic esters (C) Oct. 29 55
Gulf Oil adds propylene unit to Cedar Bayou, Tex., facility (C)....Apr. 2 40
Liquid propylene polymers via modified polybutene process (N)....Mar. 5 64

Public Relations
CPI to observe "Chemical Progress Week" (N) ....Apr. 2 46
Community relations for the plant not yet built. McKee & Harmon..Apr. 30 101
Meet the press....Feb. 5 *124
Progress and the public interest (QED) ....Nov. 26 182
Public-relations program for the established plant. V. J. McCoy....June 11 187

Pulp and Paper
Bleaching—CEDPD, new 5-step pulp-bleaching sequence (C)....Feb. 5 40
Cold water helps control interface in pulp mill (P.N.)....Apr. 16 *180
Computers—can they help papermen? (C) ....May 28 65
Crown Zellerbach to make levulinic acid from pulping byproducts (C) Jan. 22 64
Diffusion washing added to Kamyr continuous digestion process (C) July 9 78
Inventory—semiannual inventory of new plants and facilities Apr. 16 164, Oct. 29 117
Inventory—semiannual inventory of new processes and technology.Jan 22 136
Inventory—13th inventory of new processes and technology....Aug. 6 122
Kraft process may unlock pulp potential of tropical forests (C)....Jan. 22 59
Papermaking process speeds sheet formation (N) ....Apr. 16 86
Pipeline replaces railroad as pulp mover (N) ....Feb. 19 *74
Rayonier produces wood pulp with 98.5% alpha-cellulose content (C) Apr. 16 73
Sulfite waste-liquor recovery process from Arthur D. Little. (C)...Aug. 20 55
Waste sulfite pulping liquor used as binder for gravel roads (N)..May 28 84

Pumps
Canned pumps solve process problems. I. John Neimkiewicz (charts) Feb. 19 117
Chart correlates required NPSH with type of pump. V. J. Mill (P.N.) Apr. 16 *182
CE Cost File 71—Simplified technique for estimating centrifugal process pump costs. Sniffen & Serven Nov. 26 146
Floating pumps on Chicago River fight pollution (N) ....Aug. 20 *70
Plastic "swimmer arm" keeps sediment out of pump section. Aatos Eskelinen (P.N.) ....Oct. 1 *118
Hydrostatic drives can cut power costs. Lane & Holzbock ....Apr. 2 *111
Scale-up of fluid-flow systems. F. A. Holland (charts & tables)....Dec. 24 71
Sensor optimizes pumping rate for oil cargoes (N) ....Apr. 16 *88
Standard dimensions list under study by producers (C)....Feb. 5 33
"Standard" pumps hit the market, await approval (C)....May 14 71
Vacuum pumps—high-vacuum report H. A. Steinherz ....Aug. 20 *122

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Q

Quality Control
Charts—improvements in cumulative-sum control charts. J. T. Carr (charts & tables)....Sept. 17 *185
Cleanout units for tank vehicles assure pure liquid shipments (N)...Sept. 17 *106
Computerized quality control. J. R. Wilson ....May 28 *140
Particles—better control of particle sizes. William Shulman (tables) Sept. 3 *129
Stream analyzers better than control lab? (N) ....July 23 74

R

Radiation
Atomic radiation in coal gasification to get G-E experiments (C)....May 14 76
Catalyst—high-level radiation is catalyst for ethyl bromide process (C) Dec. 10 58
Device called "vortex stabilized radiation source" (VSRS) adapted from plasma-jet arc (C)....Oct. 15 73
Ethyl bromide process—atomic radiation wins full role as catalyst at Dow (N) ....Dec 24 *40
International symposium on radiation damage (N) ....June 11 100
Lubricant greases acquire radiation resistance (N) ....Oct. 15 92
Radioactivity—Calcining of radioactive wastes succeeds on pilot-plant scale (C) ....Nov. 26 47
Radioisotopes
Adsorption process eases radioisotope separation (N) ....Apr. 2 58
Radioisotopes for routine inspection of valves and piping. P. J. Brennan Oct. 29 *140
Railways—Versatile flatcar boosts piggyback concept (N)....May 14 *96
Rayon
Du Pont closes its last rayon tire cord plant (C) ....Nov. 12 81
Du Pont withdrawal lifts hopes of other tire-cord makers (C)..Nov. 26 45
Wood pulp with 98.5% alpha-cellulose content made by Rayonier (C) Apr. 16 73
Reaction—rapid method of estimating the order of chemical reactions. J. H. Flynn (tables)....Aug. 20 *137
Reactors
"Accidents", core damage studied in Idaho testing program (N)..Nov. 26 58
AEC announces spaceflight reactor (N) June 11 104
AEC starts its big-power bid (N) Oct. 1 56
Designs from two firms promise nuclear-derived, competitive electricity (N) ....Apr. 30 70
Dimpled reactor jacket....July 23 *148
Glascote's giant reactor melds high capacity with high pressure (N) July 9 *92
New equations simplify reactor calculation. B. S. Wright....July 23 *115
Nuclear reactors' prospects in the CPI —AEC survey. R. W. Ritzmann (tables) ....Sept. 3 117
Reactor in tests to up efficiency of nuclear fuel utilization (N)..May 28 *86
SPERT IV bolsters nuclear safety project (N) ....Sept. 3 88
Refining
Cat crackers use latest gas-turbine tricks (chart) (N)....Aug. 22 *74
Catalyst-treating processes—Demet and Met-X—counteract metal poisoning. R. J. Bender (chart & table) (N) July 23 *66
Central American market gets petroleum processor (N)....May 28 *88
Chelate process cuts gasoline sweetening cost (charts) (N)....Mar. 5 66
Computer control details disclosed by Sunray (N) ....June 25 *72
Computers—off-line computers aid refinery scheduling (table) (N)..June 11 102
Hydrocracking — Isocracking process boosts gasoline yield—flowsheet July 9 *118
Isomax process to get Canadian plant (C) ....June 11 86
Kitty cracker—Esso's small cat-cracking unit (C)....Mar. 19 71
Re-refining squeezes pure lubes from waste oils—flowsheet. B. Cross June 11 *126
Stream analyzers better than control lab? (N) ....July 23 74
Stream analyzer spots metals, protects catalyst (C) ....Oct. 1 35
Refractory Materials
Castable refractory lining resists carbon monoxide ....July 23 *146
Metals—understanding refractory metals. Jack Chelius (table)....Dec. 10 178
Refractories resist more than heat—Heat technology report. W. L. Wroten (tables) ....June 11 *158
Refrigeration
Closed-cycle refrigeration nears absolute zero (N)....Sept. 17 108
Desalting via Struthers-Umano freeze route set for OSW program (N) Dec. 10 78
Rail car system keeps perishable shipments cool (N)....June 11 *92
Refrigerant gives lower discharge temperatures ....Feb. 19 84
Salt mine under bayou yields to deep freeze (N) ....Oct. 1 *52
Ships—new refrigerated ships can carry a variety of chemicals (C)..Nov. 26 47
Subzero shipping opens new era for liquefied gases (table) (map) (N) Aug. 6 *64
Thermoelectric ice maker freezes hexagonal cubes (N)....Mar. 5 76
Research
Air purification cell for space flights gets NASA grant (N)....Apr. 2 58
Alloy research aims at predicting properties from composition (N).Sept. 17 112
Aluminum reduction cells—advances spur further search (C)....Mar. 5 58
Auto exhaust's effects on public health —nationwide study starts (N) Feb. 5 *52
AEC and Westinghouse to study feasibility of huge nuclear plants (N) Oct. 1 56
Better research atmosphere called key to improved profits (N)....Jan. 8 52
Canada will build planned research community in Ontario (C).June 11 86
Also, in Montreal (C)....July 23 58
Canadian tax measures aim to lure research northward (C)....May 14 76
Ceramic and quartz fibers studied for space, industry use (C)....Nov. 12 81
CPI capital spending for R & D moves up (tables) (N)....May 28 80
Chemicals lead industry in R & D funds (tables) ....Nov. 12 94
Coal—economic process sought for converting coal to a gas, liquid and solid (C) ....June 11 88
Coal gasification—G-E to experiment with atomic radiation (C)..May 14 76
Coal research project seeks economic fractionation process (C)....Sept. 17 96
Coal research shifts into high gear (N) July 23 74
Coal-to-coke processes report glowing progress (C) ....Mar. 5 60
Coal to get G-E study as source of chemicals, liquid fuels (C)...Apr. 16 76
Copper research seeks new uses (N) Oct. 15 94
Corrosion inhibitors for steel—study uncovers new compounds (table) Sept. 17 *208
Data-assembling program at Penn State Univ. gets API grant (N) June 25 *66
Designing a high-pressure laboratory. Stenberg & Coffey (charts)..Nov. 26 *115
Detergent water-pollution controversy gets new twist (C)....Jan. 8 35
Device for direct conversion of nuclear heat to electric power to get study (C) ....May 28 63
Engineering vs. U. S. problems—EJC report hits shortcomings....July 9 154
EJC plans indexing extension (N) Mar. 5 68
Fire-fighting research studies flame behavior (N) ....Mar. 5 *76
Fluorocarbon routes seek heat-resistant materials (C) ....July 9 75
Fuel cell—molten electrolyte fuel cell may aid space program (C)..Oct. 1 42
Fuel cell—Westinghouse will try to develop a cell into an aerospace device (C) ....Sept. 3 70
Heat Transfer Research, Inc. formed (C) ....Sept. 17 94
Helium properties get research project (N) ....July 9 98
Hydrogen attack on steel—API uncovers new ideas (chart)....Mar. 5 *142
Hydrogen — production of hydrogen from naphtha to get study (C) Nov. 12 86
Impeller for small-necked laboratory flasks. A. W. Billitzer (P. N.) Oct. 29 *136
Information—How to get information from Washington. R. D. Stevens Dec. 24 92
Ironmaking—U. S. Steel seeks to speed up method (C)....Mar. 19 76
Jet engine noise may be converted into electric power (C)....May 28 70
Library for business history and documentation endowed by Du Pont (N) Sept. 3 75
Liquid-propellant group focuses on combustion (N) ....Aug. 6 74
Nuclear project aims to improve fuel cycles (N) ....May 28 84
Nuclear safety project bolstered by new reactor (N)....Sept. 3 88
Organizing, staffing, maintaining in-plant technical departments. J. M. Leathers (chart) ....May 14 185
Patents indexed on magnetic tape will speed searches (C)....Mar. 5 60
Process evaluation—hyperbola correlation offers quick method. D. Th. A. Huibers ....Aug. 20 *141
Reactor for experiments to improve utilization of nuclear fuel (N) May 28 *86
Reactor testing program studies "accidents", core damage (N)....Nov. 26 58
R & D progress—from the Industrial Bulletin (QED) ....Nov. 12 340
Rocket lab arms self for safety (N) Aug. 6 *72
Rubber researchers learn why antiozonants are effective (C)....Nov. 12 86
Selecting R & D projects for profit. Solomon Disman ....Dec. 24 87
Soviet reports progress in developing polyarylate compounds (C)...Sept. 3 72
Space flight—men live seven days in closed-cycle system (N)....Nov. 26 *68
Space flight study shows two-faced results (N) ....Apr. 30 *72
Vulcanizing process using fluid-beds developed in Britain (C)....Aug. 20 60
Water—pure water from waste, goal of Public Health Service program. J. R. Marshall (chart & tables) Aug. 6 *107
Zinc production via liquid-phase oxidation (C) ....Apr. 30 54
Resins
ABS powdered resins....May 14 100
Celcon production in Europe—Joint venture of Celanese and Farbwerke Hoechst (C) ....Feb. 5 38
Coagulant—organic cationic coagulant Dec. 24 50
Doryl — new Westinghouse diphenyl polymer for electrical insulation (C) Oct. 15 *73, Oct. 29 *80
Ebolon—black resin outdoes Teflon's wear resistance ....May 14 *98
Epoxy coating, appliable on wet surfaces, protects seaside structures May 14 211, Nov. 26 *76
Epoxy-encapsulated motors resist corrosion ....Sept. 17 *212
Epoxy hardeners quicken curing time Apr. 2 64
Fire retardant protects epoxies.Nov. 26 *74
Inventory — semiannual inventory of new plants and facilities.Apr. 16 163, Oct. 29 116
Inventory — semiannual inventory of new processes and technology Jan. 22 135
Inventory—13th inventory of new processes and technology....Aug. 6 121
Kynar, new fluorocarbon polymer, marks Pennsalt entry into resins (charts) (N) ....Mar. 19 *80
Phenoxy — new thermoplastic resin made from epoxy chemicals.Nov. 26 *72
Polyester has high resistance to chemical corrosion ....Apr. 30 76
Polyester resin ....Mar. 19 98
PVC plastisols via new German route (N) ....Feb. 5 *56
Toluene-based thermosetting resin introduced by Japanese firm (C) June 11 81
Rhenium electroplating now possible Jan. 22 *80
Roasting—Fluid-bed roasting of sulfide ores. R. J. Priestley....July 9 126
Rocket Propellants
Casing for solid propellant—Hercules' giant glass-fiber shell (N)...Aug. 20 *72
Fluid spray sets off solid-propellant rocket (N) ....July 23 *76
Hexanitroethane, oxidizer, licensed for pilot production (C)....Mar. 5 60
"Liquid flywheel" developed at GE—physics may displace chemistry (N) Dec. 24 *38
Liquid hydrogen used successfully in new rocket engine (N)....Nov. 12 90
Liquid-propellant group focuses on combustion (N) ....Aug. 6 74
Moon projects will keep gulping more chemical fuels (C)....Oct. 1 40
Rocket propellant lab arms self for safety (N) ....Aug. 6 *72
Union Carbide developing propellants based on metal hydride compounds (C) ....July 9 75
Rockets and Missiles
Case for solid propellant—Hercules' huge glass-fiber shell (N)....Aug. 20 *72
Casing materials vie for acceptance (C) ....May 14 73
Fluid spray sets off solid-propellant rocket (N) ....July 23 *76
Gemini Program spacecraft gives fuel cell key role (N)....June 11 *100
Glass-reinforced aluminum for rocket motor cases (N)....Mar. 5 74
Ion-propulsion rocket activates cesium production (C) ....Apr. 16 71
Missile insulators—huge press cures missile liners (N)....Oct. 1 *54
Navy gun helps turn out Air Force aerospace parts (N)....Dec. 10 *72
Titanium wins major role in solid-fueled missile (N)....Feb. 5 *54
United Technology Corp. thrust-control system enhances performance of liquid rocket engine (C).....Nov. 26 45
Rubber
Anti-ozonants—why they are effective (C) ....Nov. 12 86
Bonding compound prevents tire tread separation ....May 14 *98
Bonding of rubber to metal improved by English process (C).....Oct. 29 60
Butyl's new producer—Columbian Carbon—will build at Lake Charles, La. (C) ....Jan. 22 61
Butyl—Petro-Tex Chemical may enter production (C) ....Feb. 19 60
Butyl plant for Belgium will use know-how that quadrupled output (chart) (N) ....June 11 *90
Carbon black's new shape woos stereo rubbers ....July 9 *100
Catalyzed elastomer coating fights corrosion ....Feb. 5 *60
Continuous process at Copolymer Rubber blends rubber, carbon black for masterbatching (C) ....Sept. 17 91

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Curing agent called MDB.....Dec. 24 50
Diene 1000, Firestone's new synthetic rubber (C).....Oct. 1 35
Ethylene-propylene rubber (EPR), called Nordel, goes commercial at Du Pont (C).....Apr. 16 76
EPR—Enjay Chemical will soon market oil-extended EPR (C)...Apr. 30 51
Finishing line averts contamination of high-quality SBR rubber—flowsheet. P. J. Brennan.....Apr. 16 *126
Injection molding pushes into rubber (N).....Oct. 1 *48
Inventory — semiannual inventory of new plants and facilities.Apr. 16 166, Oct. 29 118
Inventory — semiannual inventory of new processes and technology.Jan. 22 135
Inventory—13th inventory of new processes and technology.....Aug. 6 121
Outlook for 1962 (N).....Feb. 5 43
Polyacrylate rubber imparts better molding qualities.....July 23 82
Polysulfide rubber.....Mar. 5 80
Polysulfide rubber gives sculpture an assist (N).....Dec. 10 *82
Polyurethanes bid to usurp specialty rubbers' sealing jobs (C)....Aug. 20 58
Rubber industry leads CPI in 1962 capital spending plans (C).....Apr. 30 56
Silicone rubber gum resists heat, pressure.....June 11 *108
Silicone rubber makes flexible molds that withstand 500F.....Feb. 19 82
Spandex demand lures rubber thread producers (C).....Feb. 19 60
Stereorubbers—Stereopolymers report. Eugene Guccione (tables).....Apr. 2 *104
Tufsyn—"stereo" rubber—boosts wear-resistance of tires.....Mar. 19 102
U. S. Rubber plans to pilot synthetic balata process (C).....Feb. 19 55
Vulcanization—fluid-bed process developed in Britain (C).....Aug. 20 60

Russia
Engineering education and employment—cold light spots weaknesses.....Mar. 5 *132
Engineers get specialized training, enjoy high prestige (C).....Feb. 5 38
Farm chemicals—remedies planned for lag in fertilizers (N).....June 11 102
Nuclear welding method (C)...May 14 78
Oil drilling — turbodrilling breakthrough (N).....June 11 104
Oil exports to West achieve spectacular growth (N).....Dec. 24 *30
Phenol-from-cumene yield increased by waste-treating process (C)...Oct. 29 60
Polyarylate compounds — researchers report successful developments (C).....Sept. 3 72
Red chemicals have big potential in world market (tables) (N)...Feb. 19 *64
Silica—new form of silica synthesized (C).....Jan. 8 40

S

Safety
Alarm system—air-operated, low-cost system. Hamill & Hessmann (P. N.).....Sept. 3 *152
Be hard-headed about safety gear. H. E. Webb, Jr.....July 23 *136
Designing a high-pressure laboratory. Stenberg & Coffey (charts)..Nov. 26 *115
Emergency venting for tanks and reactors. Benjamin Block (charts and tables).....Jan. 22 *111
Higher pressures require good safety practices — High pressure report. F. W. Wilson.....Oct. 1 172
Pane relievers vent explosive popoffs at Parke, Davis (N).....Jan. 22 *70
Progress in process safety (QED).....Dec. 10 208
Rocket lab at Aerojet arms self for safety (N).....Aug. 6 *72
Safe unloading of liquid olefins and diolefins.....May 28 *146
Toxics—tabulating process industries' toxic substances. J. B. Skinner (table).....June 11 183

Salt
Diamond Crystal will start up solar salt plant in the Bahamas in 1965 (C).....July 23 58
Mining—shifting bayou sands get deep freeze (N).....Oct. 1 *52

Salvage
Chlorine tank safely raised from river (C) Nov. 12 86, (N).....Nov. 26 *66
Chlorine tank salvage may trigger court fight (N).....Dec. 24 44

Sampling
Automatic sampling device. F. J. Mulholland (P. N.).....Nov. 26 *142
Automatic sampling device has no moving parts. W. H. Yates (P. N.) Feb. 19 *142
Sampling systems for on-line analyzers —report. W. C. Schall (charts & tables).....May 14 *157
Screens—Bin shaker operates temporary vibrating screen. R. E. Leonard (P. N.).....May 14 *198

Seals
Cement pastes meet high-temperature sealing needs.....Jan. 8 *60
Polyurethanes bid for specialty rubbers' sealing jobs (C).....Aug. 20 58

Separation
Boosting separator efficiency. Walter Coopey.....Feb. 5 *118
Clathration "trap" process separates close-boiling m- and p-xylene (chart) (N).....Sept. 17 102
Clathration—what is clathration? Sept. 17 *104
Molecular sieving reduces cost of producing n-paraffins (chart & tables) Apr. 30 58
Porous-membrane pressure filter separates compounds — new Canadian process (C).....Nov. 12 79
Uranium refinery uses Petreco electrostatic separation process (charts) (N).....Jan. 8 50
Vents reduce resistance of cyclone separators. S. R. Faktorowitsch (P. N.) Feb. 19 *140

Sewage Treatment
Desalting processes may get tryout in sewage treating (N).....Jan. 8 52
Flocculent triples sewage filter capacity (N).....Apr. 16 90
Foath fractionation removes detergents from sewage water.....Apr. 30 *62
"FS" sludge disposal system (C) May 14 71
Today's wastes: tomorrow's drinking water. J. R. Marshall (chart & tables).....Aug. 6 *107
Water reclamation—aim of California pilot plant (N).....Aug. 6 *74

Shipping
Ammonia from Trinidad will move in low-temperature tankers (C).June 25 53
CE Cost File 69.—Costs of transporting process chemicals. R. H. Scheyer Sept. 3 158
Cleanout units for tank vehicles assure pure, fast liquid shipments (N) Sept. 17 *106
Fertilizers gain international scope with new bulk shipping ideas (C) Aug. 6 60
Liquid methane—U. K. puts O. K. on gas lift from Africa (map) (N) Jan. 8 46
Loads grow bigger, routes shorter—Profit squeeze report.....Jan. 8 *86
LPG—first cargo of chilled LPG goes from Arabia to Japan (N)...Jan. 22 78
Molten sulfur will take to high seas (N).....Sept. 3 84
Railcar chilling system keeps perishables cool (N).....June 11 *92
Ships—new, deep-water ships designed to carry a variety of chemicals (C) Nov. 26 47
Subzero shipping opens new era for gases (table) (map) (N)....Aug. 6 *64
Sugar-alumina pact boosts shipping efficiency (N).....Aug. 6 66
Western soda ash will benefit from new freight rates (N).....Sept. 17 104

Silanes
Alkoxysilanes.....Oct. 1 *62
Coupling agent for epoxy-glass laminates.....May 14 *100
Coupling agents for glass-resin laminates.....Mar. 19 98

Silica
Colloidal silica.....June 11 108
Fusion process grows huge silica blocks (N).....Apr. 16 *90
Soviets synthesize new form of silica (C).....Jan. 8 40

Silicates — New: liquid-process sodium silicate—flowsheet. F. C. Price Feb. 5 *76
Silicon-tetrachloride—Stauffer plant to use new fluid-bed process (C).Mar. 19 71

Silicones
Coating for metals, called Ucar, bars tarnish, corrosion.....Aug. 6 *82
Coating for electrical and mechanical equipment.....Nov. 26 *76
Coating — silicone-silver conductive coating.....Aug. 20 *82
Coatings—transparent release coatings Aug. 20 82
Fluid resists viscosity breakdown July 23 82
Polyether-silicone copolymers: key to better products.....Apr. 2 *62
Rubber gum resists heat, pressure June 11 *108
Rubber makes flexible molds that withstand 500 F.....Feb. 19 82
Silicone fluid gives urethane foam finer texture.....Aug. 20 *80
Varnish — insulating varnish dries faster.....Sept. 17 *116
Silvichemicals — Crown Zellerbach to make levulinic acid from pulping by-products (C).....Jan. 22 64

Soap
Computer guides soap-making process at automated English plant—flowsheet.....Oct. 15 *152
"Packaged" soap-making plants designed for underdeveloped areas (N) Dec. 10 74
Soda Ash—Stauffer's western output will vie in eastern markets (N)..Sept. 17 104
Sodium heat-transfer systems proposed for gas-fired power plants (C) Apr. 30 51
Sodium Silicate — New: liquid-process sodium silicate—flowsheet. F. C. Price.....Feb. 5 *76
Soil stabilizer repairs concrete...Sept. 3 92
Solar power drives pilot air conditioner (N).....Oct. 15 96

Solids
Apply theory to solids heat transfer. A. D. Holt (charts & tables)...Jan. 8 *107
Fluidized solids—where they stand today. R. J. Priestley (charts)..July 9 *125
Fluidization—design for fluidization—report. J. F. Frantz (charts) Pt 1 Sept. 17 *161, Pt 2 Oct. 1 *89, Pt 3 Oct. 29 *103
Liquid-solids blending—report. J. J. Fischer (charts).....Feb. 5 *83

Solvents
Alkaline solvents remove mill scale and water deposits.....Dec. 10 88
Sulfolane, Shell's aromatics solvent, goes commercial in Great Britain (C) Mar. 19 78
Tetramethylene sulfone combines selectivity with inertness.....Apr. 16 *98
Sonics—European acoustic burner may make U. S. debut (C).....Sept. 17 96
Southwest Research Institute—Conference on Managing Petroleum and Petrochemical Operations see under **Management**

Space Technology
Air purification cell for space ships gets NASA research grant (N) Apr. 2 58
Fuel cell for two-man spacecraft yields both power and water (N)...June 11 *100
Fuel cell—two-membrane cell for space craft (N).....Apr. 16 86
"Liquid flywheel" for space-craft developed at G-E—physics may displace chemistry (N).....Dec. 24 *38
Men live seven days in closed-cycle system (N).....Nov. 26 *68
Space flight research shows two-faced results (N).....Apr. 30 *72

Spain
Fertilizer market lures foreign capital (N).....May 14 96
Petrochemicals industry gets government boost (N).....July 23 64

Spying, Industrial
American Cyanamid favors tougher spy laws (C).....Nov. 26 52
Research espionage: a threat to our national security (QED).....Nov. 12 334

Standardization
Heat-exchanger codes—topic for panel at Heat Transfer Conference (N) July 23 70
Plastic-pipe industry adopts diameter, pressure standards (N).....Apr. 2 54
Plastic pipe makers' new code aims to boost use (N).....Nov. 26 62
Pump makers ponder proposed standards (C).....Feb. 5 33
Pumps—new "standard" pumps hit the market, await approval (C)..May 14 71
Starnate immersion halts corrosion of metallic couples.....Feb. 5 62

Starch
Monosodium glutamate — fermentation process makes low-cost MSG from wheat starch (C).....Jan. 22 64
Paper gains strength from modified starch additive.....July 23 82

Statistics
Particle sizes—statistical techniques simplify control. William Shulman (tables).....Sept. 3 *129
Statistics in chemical engineering—CE Refresher. L. B. Andersen (tables) Statistical methods extend your data Oct. 29 *119
Probability theory provides simple statistical models.....Nov. 26 125
How to use statistical inference Dec. 24 83

Steam
Navy boilers restore steam balance at Union Carbide plant (N).....Apr. 2 *52
Sodium systems proposed for gas-fired power plants (C).....Apr. 30 51

Steel
Arizona steel plant launches Madaras' direct reduction process in U. S. (C) Jan. 8 40, (chart) (N).....Mar. 5 *62
CE Cost File 64. Stainless vessels: solid vs. clad. W. G. Clark.....Apr. 16 *188
CE Cost File 66. Estimating structural-steel equipment supports. M. M. Kirk June 11 *208
Corrosion inhibitors—Glasgow study uncovers eleven new compounds (table) Sept. 17 *208
Direct reduction process from Canada may oust scrap (C).....Feb. 19 62
Glassed steel—fire-bonded glass helps steel resist corrosion. C. M. Knoll (charts).....May 28 *150
Glassed-steel equipment—guide to bolt torques and gaskets. B. G. Staples (charts & tables).....Sept. 17 *200
Glassed steel equipment—how to design, install, maintain it. C. M. Knoll (tables).....June 11 *214
How hydrogen attacks steel (chart) Mar. 5 *142
Hydrochloric acid pickling process debuts at McLouth Steel (C)..Dec. 10 53
Linz-Donawitz process for making steel—world capacity zooms (C) July 23 55
Nickel steel accepted by ASME for cryogenic service to −320 F. (C) May 14 76
9% nickel steel holds helium at −320 F. J. D. Heffernan (charts & table) Oct. 15 *210
Oxygen plant ups Ford steel capacity (N).....July 9 *86
Papermaking—outlet for Armco stainless? (N).....Sept. 3 *86

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Price "increase" points up equipment makers' profit squeeze (C)...May 14 76
Specialty steels—in a hurry from Mills-Wolf (N) ....Dec. 24 *42
Stainless steel construction—key feature of new superphosphoric acid plant (N) ....Oct. 1 *58
Welded-on stainless overlays combat corrosion in carbon steel vessels. Linnert & Crooks....Oct. 1 *124

Storage
Coated tunnels offer liquid-storage bargain (N) ....May 28 *82
Giant sphere stores fuel for rocket testing (N) ....Aug. 6 *80

Styrene
ABS plastics via three polymerization lines—flowsheet ....Sept. 17 *154
Scientific Design claims improved styrene monomer process (C)..Apr. 2 33
Sinclair-Koppers Chemical—joint styrene venture—flowsheet. Wilma Cortines ....July 23 *96
Sucrose benzoate—new solid ester available ....July 9 *102
Sugar—Arabingalactan (wood sugar) to get semicommercial plant in Montana (C) ....Aug. 6 55

Sulfonation
Sulfur trioxide sulfonation—package plant offered by Chemithon (C) Jan. 8 33
Sulfur trioxide sulfonation tamed by Chemithon's new process (chart) (N) Mar. 5 70

Sulfur
Gas sweetening plant recovers sulfur in maximum yields—flowsheet. Peter Brennan ....Oct. 29 *94
Molten sulfur will take to high seas (N) ....Sept. 3 84
Sulfur trioxide—Sulfonation process developed by Chemithon (C) Jan. 8 33, (Chart) (N) ....Mar. 5 70

Surfactants
Alkali-stable detergents....Oct. 29 82
Anionic agent solubilizes detergents in electrolytes....Feb. 5 62
Cationic surfactant....Apr. 30 *80
Fatty imidazolines—two new products Mar. 5 82
Paint additive improves gloss and hiding power....Sept. 3 96
Polyether-silicone copolymers: key to better products....Apr. 2 *62

T

Tanks
Chlorine tank safely salvaged from river (C) ....Nov. 12 86
Cleaning large hollow vessels—Chemistry in maintenance report. C. M. Loucks (chart) ....Mar. 5 112
Cleanout units for tank vehicles assure pure, fast shipments (N)....Sept. 17 *106
Emergency venting for tanks and reactors. Benjamin Block (charts & tables) ....Jan. 22 *111
Titanium tank—Beech Aircraft's jumbo tank passes test (N) ....Sept. 3 *90
Vinyl liners restore old tanks..Apr. 16 198

Tape
Asbestos-phenolic tape resists heat, ablation ....Mar. 5 *80
Magnetic index tape will speed patent searches (C) ....Mar. 5 60
Taxes—Canadian taxes aim to lure research northward (C)....May 14 76
Technetium—Process refinements slash price of nuclear fission product (N) Aug. 6 78

Technology
Engineering attacks the profit squeeze—report ....Jan. 8 *83
Engineering vs. U. S. problems—EJC report hits shortcomings....July 9 154
Heat technology report see **Heat**
Higher pressures offer challenge—report. F. W. Wilson (charts)..Oct. 15 *159
High-vacuum technology and equipment—report. H. A. Steinherz Aug. 20 *117
Inventory—semiannual inventory of new processes and technology..Jan. 22 131
Inventory—13th inventory of new processes and technology ....Aug. 6 117
Planning — long-range planning in petrochemical markets and technology. Edward Tarnell....May 28 127
Remarks by Vice Admiral Hyman G. Rickover (QED) ....Nov. 26 184

Teflon
Ebolon—largely Teflon resin tops Teflon's wear resistance....May 14 *98
Glass-filled Teflon makes better gaskets ....Feb. 5 *64
Gold-Teflon fabric wards off 3,000 F. heat ....Apr. 30 *76

Television
Closed-circuit TV keeps tabs on refinery pumps (N) ....Apr. 2 *56
Oil well secrets yield to TV camera (N) ....Sept. 17 *114

Temperature
Convenient laboratory temperature standard. H. S. Myers (P.N.)..Mar. 19 *192
Heat technology report see **Heat**
Subzero shipping opens new era for liquefied gases (table) (map) (N) Aug. 6 *64
Tennessee Valley Authority—Nitric acid plant bids (C) Feb. 5 33, (C)..Dec. 10 58
Terpene—Glidden process cools erratic menthol supply (N)....Apr. 16 *80

Testing
Corrosion testing: ideas and techniques. R. V. Hughson....Apr. 30 *132
Flame-resistance testing of plastics. Feuer & Torres....Apr. 2 *138
Fresh-water plant will test scale prevention (chart) (N)....Jan. 22 74
Oxyluminescence—new method for testtable) ....Aug. 6 *107
ing polymers (N) ....Oct. 15 90
Paint testing—how to get your money's worth. R. K. Swandby (tables) June 11 191
Pipe—Fluoroscopic testing system continuously inspects steel pipe (C) Dec. 10 55
Reactor testing program studies "accidents", core damage (N)....Nov. 26 58
Statistical inference—hypothesis testing —CE Refresher. L. B. Andersen (tables) ....Dec. 24 83
Stronger X-ray unit tests welds in thick-wall vessels (N)....Mar. 5 *74
Tetrachlorides—Stauffer's new plant will produce tetrachlorides of silicon and zirconium (C) ....Mar. 19 71
Tetrafluoroethylene — Pennsalt's pyrolytic process heats up fluorocarbon-polymer contest (charts) (N)..Mar. 19 *80
Tetramethylene sulfone—solvent combines selectivity with inertness....Apr. 16 *98

Textiles
Antistatic agent called Stanax...Mar. 5 82
Chemical reconstitution of waste nylon gains commercial support (C)..Jan. 8 38
Finishers ponder two proposals for lessening stream pollution (C)..Jan. 22 64
Foam-to-fabric adhesive ....Oct. 15 100
Graphite finish triples life of glass-bag gas filters (chart) (N)....Nov. 12 92
Sizing compound makes hydrophobic yarns easy to weave....Mar. 19 98

Thermodynamics
Free-energy minimization. R. C. Oliver & others (tables)....Feb. 19 121
Review of equilibrium-constants solution ....Feb. 19 121
Procedure for free energy minimization ....Feb. 19 123
Applying the free energy method Feb. 19 125
Slide-rule calculation gives heat of steam vaporization. Sidney Kravitz (table) (P.N.)....June 11 206
Thermodynamics of ideal gases. D. M. Church ....Mar. 5 *127
Using pVT data to calculate enthalpy and entropy. David Cornell (charts and tables) ....Mar. 19 *159
Thorium—Canadian thorium wins big slice of world market (N)....Apr. 30 *64

Titanium
Consumption grows as price drops (N) Feb. 19 72
Forming and welding titanium — methods, fabricators. R. V. Hughson Aug. 6 *150
Tank—Beech Aircraft's jumbo titanium tank passes test (N)....Sept. 3 *90
Titanium-palladium alloy gets major test as vessel lining at Celanese (C) Aug. 20 58
Titanium: where it stands (table) Apr. 16 *194
Titanium wins major role in solid-fueled missile (N)....Feb. 5 *54
Vacuum annealing shortcuts titanium treating (N)....Apr. 16 *96

Titanium dioxide
Chloride process gains as producers move west (C)....Apr. 30 49
TiO_2 technology keeps pace with competition—processes, capacity (chart & table) (N)....July 23 62
Toluene-based thermosetting resin developed in Japan (C)....June 11 81

Toluene diisocyanate
Allied Chemical will build plant at Oxnard, Calif. (C)....May 28 68
Capacity expansions—who's afraid of overcapacity in TDI? (C)....Sept. 3 70
Topping tower—Maruzen erects Japan's largest tower (N)....July 9 *96
Toxics — Tabulating the toxics — J. B. Skinner (table) ....June 11 183

Training
Developing the better operator. R. N. Stapleton ....Oct. 15 *198
Make the most of engineering talent. D. J. Cestoni....May 28 131
Overseas training: valuable aid to engineer education. Carole Alpert..Aug. 6 *132
Package plan for training engineering technicians by correspondence (C) Aug. 6 57
Programmed instruction — new self-teaching technique....Mar. 19 *182
Training develops the better manager. Chaplin Tyler....June 25 *129
Tubing—Heat-exchanger tubing — welded carbon steel gains favor. H. F. Hinst (charts & tables)....Dec. 24 106
Tungsten disulfide lubricant—99.8% pure —operates at high temperatures, pressures ....Oct. 1 64
Turbines—Gas turbines and cat crackers team up in new oil refineries (chart) (N) ....Aug. 20 *74
Turpentine—Terpine process gets high-quality menthol from domestic supplies (N) ....Apr. 16 *80

U

Unit Operations
Rate processes in unit operations—CE Refresher, Coates & Pressburg..Mar. 19 177
Refresher can help you find answers Mar. 19 *178
U. S. Public Health Service—Air monitors start study of auto fumes' effects on health (N)....Feb. 5 *52

Uranium
British scientist finds two ways to hike enriched-uranium output (N)..July 9 98
Dakota lignite ores—Kermac Nuclear Fuels moves into uranium recovery (C) ....Aug. 6 57
Dakota lignite ores yield uranium via solvent extraction at Susquehanna-Western pilot plant (C)....July 23 53
Differential extraction recovers uranium-235 from nuclear waste (C) July 23 53
Extraction — electrostatic separation process stops entrainment of impurities (charts) (N)....Jan. 8 50
Kerr-McGee Oil acquires Spencer Chemical's nuclear fuels department (C) July 23 55
Outlook—AEC's Johnson gives views (N) ....May 14 92

V

Vacuum
High-vacuum technology and equipment—report. H. A. Steinherz..Aug. 20 *117
Vacuum process concentrates phosphoric into superphosphoric acid (C) June 25 53
Vacuum pump fluid made from polyphenyl ether....Aug. 6 86
Valves—How to size control valves for high viscosities. B. G. Liptak (P.N.) Dec. 24 95
Vanadium—Procuders seek new sources to forestall shortage (C)....Mar. 5 55

Vaporization
Chart gives flash fraction in binary feed streams. B. S. Wright (P.N.) Aug. 6 *142
Determining first guess in dew and bubble points. B. S. Wright (P.N.) July 9 160
Varnish—Silicone varnish speeds production of coated insulating sheets Sept. 17 *116

Vinyl
Fiber—Japan develops low-cost vinyl fiber (C) ....Aug. 20 55
Japan's fiber called a breakthrough (C) ....Sept. 3 65
PVC conduit approved for aboveground use (N) ....July 9 96
PVC—major spurt coming as construction adopts rigid PVC—end-uses, producers (N)....Aug. 20 *62
PVC tape protects pipe from corrosive attack ....May 14 *210
Tank liners of sheeting called "Krene" restore old vessels....Apr. 16 *198
Vinyl copolymers coming for adhesives, coatings ....Sept. 17 118
Vinyl maleate copolymer emulsion—new house paint vehicle....Dec. 24 48

W

Waste Disposal
Air flotation system cleans up industrial waste streams (C)....May 28 63
Atomic wastes—first private disposal plant may be built near Buffalo, N. Y. (C) ....July 23 60
Bacterial action process converts garbage to fertilizer (C)....Apr. 2 25
City-company teamwork will lift pollution load (N)....Nov. 12 *88
Desalting processes may be used to treat wastes in fresh-water streams (N) ....Jan. 8 52
"FS" sludge disposal system saves space, cuts costs (C)....May 14 71
Garbage converted to odorless compost in California community (C)..May 28 68
Ion exchange treats waste liquors (C) Nov. 26 52
Paper mills dispose of waste sulfite pulping liquor as binder for gravel roads (N)....May 28 84
Radioactive wastes calcined on pilot-plant scale (C)....Nov. 26 47
Textile finishers weigh two ideas for lessening stream pollution (C)..Jan. 22 64
Two-stage treatment reduces waste discharge to river (N)....Jan. 8 42
"Waste farm" takes care of phenolic waste disposal. S. B. Hettig (P.N.) Dec. 24 *96

Waste Utilization
Nuclear fuels reprocessing see under **Atomic Power, Fuel**
Plating plant uses one waste to treat another (N) ....June 11 *98
Soviet waste-reprocessing treatment increases phenol-from-cumene yield (C) ....Oct. 29 60
Sulfite waste-liquor recovery process from Arthur D. Little (C)...Aug. 20 55
Today's wastes: tomorrow's drinking water? J. R. Marshall (chart & table) ....Aug. 6 *107

Water
Heavy water
Du Pont of Canada studies plans to build plant (C)....Apr. 2 25

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

Process redesign may cut costs 40% (N) ....Feb. 19 78
Sea water proposed for use in making fertilizers (C) ....Apr. 16 78
Ultrapure water made by ion-exchange system—flowsheet ....Feb. 19 *100
Water Pollution
Aerial photos: new government weapon against water pollution. Bruce Cross (N) ....Apr. 2 *42
Challenges in research and development (QED) ....Dec. 10 204
City-company teamwork will lift Kanawha River pollution load (N).Nov. 12 *88
Cooling-water supply setup to cut pollution (N) ....Oct. 15 92
Desalting processes may be tried on fresh-water contaminants (N).Jan. 8 52
Detergents—ABS may yield to new foaming and recycle process from California Research (C)....Dec. 10 53
Detergents—Conference hears new ways of fighting ABS detergents (C) Oct. 29 58
Detergent foam problems fast coming to a head (N)....Oct. 15 *84
Detergent research findings add new twist (C) ....Jan. 8 35
Detergents yield to activated-carbon adsorption system (C)....Mar. 19 73
Federal pollution law starts two cleanups (C) ....Jan. 22 66
Floating aeration device fights Chicago River pollution (N)....Aug. 20 *70
State stops hearings on pulp waste discharge (C) ....June 25 60
Textile finishers weigh two ideas for cutting pollution (C)....Jan. 22 64
Today's wastes: tomorrow's drinking water? J. R. Marshall (chart & tables) ....Aug. 6 *107
Water Supply
California pilot plant set to reclaim water from sewage (N)....Aug. 6 *74
Cooling-water supply setup to cut pollution (N) ....Oct. 15 92
Fresh water from the sea may be made economically in Venezuela by using geothermal steam (C)....Feb. 5 35
Monsanto's Chocolate Bayou complex gets huge reservoir (N)....May 28 *84
Oxidation process removes iron and manganese from water supplies (C) Apr. 6 78
Today's wastes: tomorrow's drinking water? J. R. Marshall (chart & tables) ....Aug. 6 *107
Water Treatment
Desalting by multistage flash distillation at Point Loma, Calif.—flowsheet. Eugene Guccione....Dec. 10 *122
Desalting—fresh-water plant at Roswell, N. M., will test scale prevention (chart) (N) ....Jan. 22 74
Desalting gets intensive airing at technical meeting (N)....Apr. 30 66
Desalting—OSW discloses desalting outlay (N) ....Dec. 10 76
Desalting—old method, long-tube vertical evaporation, produces fresh water from the sea—flowsheet. Eugene Guccione ....Nov. 26 *102
Desalting pilot plants construction schedule gets speedup (N)...Dec. 24 38
Desalting pilot plant will use G-E's wiped-film evaporator (C)....Apr. 30 56
Desalting plant at Point Loma, Calif. (N) ....Apr. 16 *94
Desalting plant at Webster, S. D., to prove out electrodialysis—flowsheet May 28 *104
Desalting plant will cut Arizona town's hidden hard-water costs (N).Mar. 19 94
Desalting — Struthers-Umano freeze process likely for Wrightsville Beach, N. C., plant (C) ....Aug. 6 60
Desalting — Struthers-Umano freeze process set for revised OSW program (N) ....Dec. 10 78
Desalting via freeze process—OSW will build pilot, not demonstration, plant (C) ....Oct. 29 53
Desalting — Weigandt freeze process makes news at Blaw-Knox plant (C) Oct. 29 55
Detergent foam problems surge, focus attention on biodegradable ingredients (N) ....Oct. 15 *84
Detergents—Johns Manville unit removes ABS from laundry waste water (C) ....Oct. 15 78
New adsorbent facilities unit's operation (C) ....Nov. 12 84
Detergents and other fresh-water contaminants—desalting methods may be applied (N)....Jan. 8 52
Detergents yield to activated-carbon adsorption system (C)....Mar. 19 73
Udall invites communities to take part in desalting program (C)....Apr. 16 76
Waste waters—Today's wastes: tomorrow's drinking water? J. R. Marshall (chart & tables)....Aug. 6 *107
Weather
Getting ready for winter?....Nov. 12 *264
Gulf Coast hard hit by cold wave (C) Feb 5 35, (N)....Feb. 19 *78
Gulf Coast victims bolster weather defenses (N) ....June 25 *74
Welding
Exothermic annealing kits cut costs June 25 *116
Nuclear welding method developed in Russia (C) ....May 14 78
Titanium forming and welding—methods, fabricators. R. V. Hughson Aug. 6 *150
Tubing — welded carbon steel gains favor for heat exchanger tubing. H. F. Hinst (charts & tables).Dec. 24 106
Welded on stainless overlays combat corrosion. Linnert & Crooks....Oct. 1 *124
Wood
Arabingalactan (wood sugar) to get semi-commercial plant in Montana (C) ....Aug. 6 55
Biocide can double as wood preservative ....Jan. 22 80
Rout rot from wooden water-cooling towers (chart) ....Feb. 19 *154
Wool — Wurlanizing process reduces shrinkage of wool cloth (C)...Aug. 6 55

X

X-rays—Stronger X-ray unit speeds inspection of thick weld seams (N) Mar. 5 *74
Xenon tetrafluoride synthesized at Argonne National Lab. (C) Nov. 15 71
Nov. 12 *106
Xylene
Isomerization process changes m-xylene into o- and p-xylenes (C) Jan. 22 59
O-xylene as phthalic feedstock—tests near verdict (C)....Mar. 5 53
O-xylene looks even better in Von Heyden's new phthalic process. T. P. Forbath (chart) (N)....Sept. 17 *98
Trap process, called clathration, separates close-boiling m- and p-xylenes (chart) (N) ....Sept. 17 102
Xylenols—New cresols process leads to expanded output (chart) (N).Aug. 20 *66

Z

Zinc
Coating for cold galvanizing....Oct. 15 102
Liquid-phase oxidation may streamline zinc production (C)....Apr. 30 54
Liquid-phase oxidation—pilot tryout in Canada (C) ....May 28 63
Zirconium tetrachloride—Stauffer's new plant will use fluid-bed process (C) Mar. 19 71

NOTES—*Illustrated; (C) Chementator; (N) News; (P.N.) Plant Notebook; (QED) Quotes, Extracts, Digests

AUTHOR INDEX

Aldredge, E. S.
The "Monte Carlo" technique of operations research ....June 25 *109
Allen, D. L. & J. O. Osborn
High-precision level device uses radioisotope ....Jan. 22 *144
Allen, J. P. & David Cooper
Continuous absorption removes acid fumes ....Nov. 26 *144
Alleva, Robert Q.
Improving McCabe-Thiele diagrams Aug. 6 *111
Alpert, Carole
Overseas training: valuable aid to engineer education ....Aug. 6 *132
Andersen, L. Bryce
CE Refresher—Statistics in chemical engineering
Statistical methods extend your data Oct. 29 *119
Probability theory provides simple statistical models ....Nov. 26 125
How to use statistical inference Dec. 24 83
Armstrong, G. M. & L. R. Olson
Improving a chemical plant via process simulation ....Sept. 3 *135
Arne, Frances
Fire retardants: plastics' entree to building (N) ....June 25 *62
Shifting needs and sources tinge pigment future ....July 9 *82
Tariff showdown makes processors choose sides ....May 14 *82
Autenreith, John R.
Money-saving methods for maintaining electrical equipment....Apr. 2 *128
Baier, R. W. & others
Calculating free-energy minimization Feb. 19 121
Barduhn, A. J. & W. N. Gill
Transport phenomena in mass transfer Apr. 16 *167
Barnhart, John M.
Insulation saves heat, saves money June 11 *164
Barton, Lon D.
Suffering from execumania?....Oct. 15 *196
Bashian, V.
Does profit-sharing pay off?....Nov. 26 *134
Beiswinger, George L.
Your next job change: time to think Apr. 30 121
Bender, Rene J.
Processes offer antidote to catalyst poisons ....July 23 *66
Billitzer, A. W.
A large impeller for small-necked laboratory flasks ....Oct. 29 *136
Spray disk disperses slugs from injector pump ....Jan. 22 *146
Block, Benjamin
Emergency venting for tanks and reactors ....Jan. 22 *111
Boas, Arnold H.
Optimization series—What optimization is all about....Dec. 10 *147
Bond, Fred C.
New ideas clarify grinding principles Feb. 5 *103
Brennan, Peter J.
Amine treating of sour gas: good riddance to H_2S....Oct. 29 *94
Radioisotopes make routine inspection possible on valves and piping.Oct. 29 *140
Special finishing line processes high-quality rubber ....Apr. 16 *126
Brooke, Maxey
Corrosion inhibitor checklist....Feb. 5 134
Camarena, Eliot, Ing.
An insider's viewpoint of Mexican-American enterprises....May 14 *178
Canjar, L. N. & M. R. Kamal
Finding liquid diffusion coefficients Dec. 10 159
Carr, Joseph T.
Improvements in quality-control charts Sept. 17 *185
Cestoni, D. J.
Make the most of engineering talent May 28 131
Champagne, M. G.
Automatic vent maintains flow through condenser ....Apr. 16 *180
Chase, Thomas T.
Dealing with absentee management May 14 173
Chelius, Jack
Understanding the refractory metals Dec. 10 178
Chen, Ning Hsing
New equation gives tower diameter Feb. 5 *109
Church, Don M.
Centrifugal gas compressors
Pt. 1 Thermodynamics of ideal gases Mar. 5 *127
Pt. 2 Numerical integration simplifies nonideal gas calculations..Mar. 19 *167
Pt. 3 How to pick centrifugal compressors ....Apr. 2 *117
Clark, W. G.
Stainless vessels: solid vs. clad.Apr. 16 *183
Cline, Ralph T.
Make use of informal contacts.Nov. 26 112
Coates, Jesse & B. S. Pressburg
CE Refresher — Adsorption theory guides process design....Feb. 19 *129
CE Refresher—Examine leaching and extraction ....Jan. 22 *125
CE Refresher—Rate processes in unit operations ....Mar. 19 177
Coffey, E. G. & J. F. Stenberg
Designing a high-pressure laboratory Nov. 26 *115
Constance, John D.
Water content of nitrogen and oxygen at low temperature....Oct. 1 *120
Cooper, David & J. P. Allen
Continuous adsorption removes acid fumes ....Nov. 26 *144
Coopey, Walter
Boosting separator efficiency....Feb. 5 *118
Cornell, David
Using pVT data to calculate H and S Mar. 19 *159
Cortines, Wilma
Styrene: two firms team up....July 23 *96
Cosinuke, Walter
The critical-path technique for planning and scheduling....June 25 *112
Cowan, James C.
Tapping public sources on competitive costs ....Nov. 26 110
Crooks, K. L. & G. E. Linnert
Welded-on stainless overlays protect against corrosion ....Oct. 1 *124
Cross, Bruce
Aerial photos: new weapon against pollution ....Apr. 2 *42
Squeezing pure lubes from waste oils June 11 *126
World's largest supply feeds new potash plant ....Nov. 12 *176
Diab, S. & M. Haruni
Straight lines find plates in a fractionator ....Apr. 16 *173
Digeser, H. J.
A simple vent for liquid heating systems ....Oct. 29 *132
Disman, Solomon
Selecting R&D projects for profit Dec. 24 86
Draley, Joseph E.
Corrosion of film-forming metal Pt. 1 Nov. 12 *256, Pt. 2 Nov. 26 *152

Dryden, C. E. & M. D. Winfield
Nomograph gives equipment and plant costs ....Dec. 24 100
Dubs, M. A. & R. L. Thompson
Cryogenics: lower temperatures at lower costs ....June 11 *152
Duzy, Albert F.
Combustion is still the prime source of process heat ....June 11 *138
Earle, Ellis P.
Economic decisions and scheduling for the small plant....June 25 *118
Eliot, T. Q. & D. R. Longmire
Dollar incentives for computer control Jan. 8 *99
Enyedy, Gustav, Jr.
Applying the deductive method to competitive costs ....Nov. 26 113
Eskelinen, Aatos
Plastic "swimmer arm" keeps sediment out of pump suction....Oct. 1 *118
Faktorowitsch, S. R.
Vents reduce resistance of cyclone separators ....Feb. 19 *140
Feuer, S. S. & A. F. Torres
Flame-resistance testing of plastics Apr. 2 *138
Fischer, John J.
Liquid-solids blending ....Feb. 5 *83
Fisher, G. T.
Capitalized costs for incremental analysis ....Aug. 6 146
Fishtine, Stanley H.
An improved equation to estimate liquid densities ....Sept. 3 154
Fitch, Bryant
Countercurrent filtration washing Jan. 22 *119
Flynn, Joseph H.
Rapid method of estimating the order of chemical reactions....Aug. 20 *137
Forbath, T. P.
New design recoups heat in nitric acid plants ....Dec. 24 64
Phthalic process makes o-xylene look even better ....Sept. 17 *98
Simple, direct path to acrylates Mar. 5 *96
Fordham, James T.
Automatic breathing system for inert gas enclosure ....July 9 *158
Foust, Alan S.
Advances in heat transfer theory June 11 *177
Frantz, Joseph F.
Design for fluidization Pt. 1 Sept. 17 *161, Pt. 2 Oct. 1 *89, Pt. 3 Oct. 29 *103
Friedman, Sy H.
Choosing a graphite heat exchanger July 9 *133
Frumerman, Robert.
Evaluating the proposed plant..Oct. 1 101
Profitable plants: design, construction and operation ....Apr. 16 133
Garrett, Peter L.
Write right: a memo to engineers Apr. 2 *122
Geiger, Larry J.
Glass-reinforced plastic pipe Pt. 1 Aug. 20 *160, Pt. 2 Sept. 3 162
Gibbons, Edward J.
Design charts..Jan. 22 150, Feb. 19 146, Mar. 19 192, Apr. 16 182, May 14 200, July 9 160
Probability, downtime and doomed designs ....Nov. 12 *250
Gill, William N.
CE Refresher—Mathematics review
How to formulate and solve partial differential equations ....Sept. 3 *131
How to solve some partial differential equations ....July 9 *145
Mathematics for chemical engineers May 28 *121
Mathematics of Bessel and Graetz functions ....Aug. 6 *125
Mathematics provides understanding for new ideas....Apr. 30 *109
Laplace transforms provide solutions to partial differential equations Oct. 1 97
How to solve second-order linear partial differential equations Oct. 15 189
Gill, W. N. & A. J. Barduhn
Transport phenomena in mass transfer Apr. 16 *167
Gilmartin, Joseph W.
Sharpen your interviewing skill Sept. 17 *194
Glotzer, H. L.
Generalized equation speeds batch distillation design ....May 14 *202
Gomezplata, A. & R. M. Marsheck
Device amplifies signal to recorder Oct. 1 *116
Gomezplata, A. & P. Sykes
"Spare parts" make an accurate tachometer ....Mar. 19 *190
Gray, Albert Woodruff
Are you free to change jobs?..Oct. 29 *126
Don't lost a patent by premature use Jan. 8 *117
If you're a nuisance, you court trouble May 14 *192
Gries, W. H.
Adjustable restriction accurately controls flow ....Oct. 1 *114
Semiautomatic level control for wet pressure gas meters....Dec. 24 97
Gross, William L.
"Home-made" device gives fast pressure readings ....Feb. 19 *148
Guccione, Eugene
Old method for fresh-water needs Nov. 26 *102
Stereospecific catalysis: new dimension in polymerization ....Apr. 2 *93
Water desalting by multistage flash distillation ....Dec. 10 *122
Gumprecht, D. L.
Cycle counter for zone-refining systems Nov. 26 *140
Gupta, Ved Swarup
Charts find volume of gas for heating coke ovens ....Apr. 16 *184
Hamill, J. & G. D. Hessman
A low-cost air-operated alarm system Sept. 3 *152
Harmon, Jack & H. C. McKee
Community relations for the plant not yet built ....Apr. 30 101
Harris, L. S.
For flexibility, the air-evaporative cooler ....Dec. 24 *77
Haruni, M. & S. Diab
Straight lines find plates in a fractionator ....Apr. 16 *178
Heffernan, John D.
9% nickel steel holds helium at −320 F. Oct. 15 *210
Hedge, Thomas E.
The value of formal contacts..Nov. 26 110
Hessmann, G. D. & J. Hamill
A low-cost air-operated alarm system Sept. 3 *152
Hettig, Stewart B., Jr.
Dealing with an outside designer June 25 *101
"Waste farm" takes care of phenolic waste disposal ....Dec. 24 *96
Hinst, Howard F.
Using steel heat-exchanger tubes.... Dec. 24 *106
Holland, F. Anthony
Scale-up series
Liquid-mixing systems ....Sept. 17 179
Heat exchange systems....Nov. 26 119
Fluid-flow systems ....Dec. 24 71
Holt, Arthur D.
Apply theory to solids heat transfer Jan. 8 *107
Holzbock, W. G. & A. M. Lane
How to save with hydrostatic drives Apr. 2 *111
Huesler, Hans
Simple method finds logarithmic means value ....Aug. 6 *144
Hughes, James E.
How to motivate engineers....Aug. 20 148
Hughson, Roy V.
Forming and welding titanium..Aug. 6 *150
Ideas and techniques for corrosion testing ....Apr. 30 *132
Hughson, R. V. & R. B. Norden
Materials of construction—20th biennial report ....Nov. 12 *185
Huibers, Derk Th. A.
Hyperbola correlation: quick, simple method for process evaluation Aug. 20 *141
Ibrahim, S. H. & others
New equation correlates transport properties ....May 14 *198
Iscol, Lewis
How to solve optimization problems Feb. 19 *107
Jones, H. M.
Chart finds flow parameter for bubble-cap column ....Jan. 22 148
Kamal, M. R. & L. N. Canjar
Finding liquid diffusion coefficients Dec. 10 159
Keating, Charles J.
Accurate way to estimate pipe-installation costs ....June 25 125
Keene, Jenness
How to spot creative talent....June 25 *134
Kelley, W. J.
A liquid divider for batch distillation columns ....Sept. 3 *154
Kirk, Michael M.
Estimating structural-steel supports June 11 *208
How much for jacketed equipment? July 9 *164
Kladko, Martin
Homemade triangles speed distillation column design ....Aug. 6 *140
Steam-trap level controller foils wintry blasts ....June 11 *202
Klapper, W. T.
Control-valve damping reduces fluctuations ....Aug. 6 *138
Knapp, H. G.
Built-in spreader for large-diameter flanges ....Dec. 24 *98
Knoll, Charles M.
Fire-bonded glass helps steel to resist corrosion ....May 28 *150
Working with glassed-steel equipment June 11 *214
Korchak, E. I. & H. S. Mickley
Graphical method simplifies heat-exchanger problems
Determining multistage exchanger performance ....Oct. 12 *181
Finding optimum economic size for multistage exchangers ....Nov. 12 *239
Kravitz, Sidney
Slide-rule calculation gives steam's heat of vaporization....June 11 206
Kuloor, N. R. & others
New equation correlates transport properties ....May 14 *198
Kuong, Javier F.
Optimize solute-recovery operations Mar. 19 *173
Labine, Roland A.
Engineers: are they getting scarce? Sept. 3 *144
Problems of a Negro engineer..Dec. 10 *164
Lane, A. M. & W. G. Holzbock
How to save with hydrostatic drives Apr. 2 *111
Lapple, Charles E.
One-page chart sums up characteristics of fine particles....June 11 206
Leathers, J. M.
Organizing, staffing and maintaining in-plant technical departments May 14 *185
Lemlich, Robert
Test your CEQ..Jan. 22 148, Feb. 19 144, Mar. 19 190, Apr. 16 180, May 14 200, June 11 204, July 9 158, Aug. 6 140, Sept. 3 152, Oct. 9 134, Nov. 26 142, Dec. 24 96
Levan, Raymond K.
Plastic coating in fluidized beds.July 9 *170
Leonard, R. E.
Bin shaker operates temporary vibrating screen ....May 14 *198
A level indicator for liquid sodium vessels ....Oct. 29 *134
Lewis, James H.
Glass standpipe measures output volume of pump....Aug. 6 *140
Linnert, G. E. & K. L. Crooks
Welded-on stainless overlays protect against corrosion ....Oct. 1 *124
Liptak, Bela G.
Costs correlated for process control panels ....Oct. 1 *122
Flow instruments: cost vs. size..Mar. 19 *196
How to estimate level controllers Feb. 5 130
How to size control valves for high viscosities ....Dec. 24 95
Longmire, D. R. & T. Q. Eliot
Dollar incentives for computer control Jan. 8 *99
Loucks, Charles M.
Chemistry tackles plant maintenance Mar. 5 *103
Our teachers don't teach creativity Apr. 16 *172
Lowe, C. W.
Critical-path scheduling simplified Dec. 10 170
Lyons, L. R.
Epoxy resins seal threaded pipe joints Aug. 6 144
Marshall, James R.
Today's wastes: tomorrow's drinking water? ....Aug. 6 *107
Marsheck, R. M. & A. Gomezplata
Device amplifies signal to recorder Oct. 1 *116
Mauchly, John W.
Critical-path scheduling ....Apr. 16 *139
McCoy, Val Jean
A public-relations program for the established plant ....June 11 187
McKee, H. C. & Jack Harmon
Community relations for the plant not yet built ....Apr. 30 101
Mickley, H. S. & E. I. Korchak
Graphical method simplifies heat-exchanger problems
Determining multistage exchanger performance ....Oct. 12 *181
Finding optimum economic size for multistage exchangers ....Nov. 12 *239
Mill, V. J.
Chart correlates required NPSH with type of pump....Apr. 16 *182
Missen, R. W.
Pressure drop in vapor-relief systems Oct. 29 101
Moore, Joe F.
New tools for decision making (moderator) ....June 25 *106
Morton, Donald S.
Heat exchangers dominate process heat transfer ....June 11 *170
Mulholland, F. J.
Automatic sampling device....Nov. 26 *142
Munson, John K.
Optimizing batch-continuous systems July 9 *139
Myers, H. S.
Convenient laboratory temperature standard ....Mar. 19 *192
Niemkiewicz, I. John
Canned pumps solve process problems Feb. 19 *117
Norden, Robert B.
New trends in chemistry: a roundup Jan. 8 105
Norden, R. B. & R. V. Hughson
Materials of Construction—20th biennial report ....Nov. 12 *185
O'Connell, F. P.
Chart gives operating labor for various plant capacities ....Feb. 19 *150
Pick a job, any chemical engineer's job ....Feb. 19 *134
Oliver, R. C. & R. W. Sprague
Temperature-compensated distillation column ....Sept. 3 *150
Oliver, R. C. & others
Calculating free-energy minimization Feb. 19 121
Olson, L. R. & G. M. Armstrong
Improving a chemical plant via process simulation ....Sept. 3 *135
Osborn, J. O. & D. L. Allen
High-precision level device uses radioisotope ....Jan. 22 *144
Parekh, Kishor H.
Air leaks can stop conveyors...May 14 200
Perry, John
Are your hourly men boxed in?..June 11 *196
Perry, Wesley, Jr.
Revamped wet process is boosting cement yield ....Aug. 6 *100

Popper, Herbert
Good ideas need selling!.....July 23 *130
Pressburg, B. S. & Jesse Coates
CE Refresher — Adsorption theory guides process design.....Feb. 19 *129
CE Refresher—Examine leaching and extraction .....Jan. 22 *125
CE Refresher—Rate processes in unit operations .....Mar. 19 177
Price, Frederick C.
New: liquid-process sodium silicate Feb. 5 *76
Priestley, Robert J.
Where fluidized solids stand today July 9 *125
Revilock, J. F. & R. P. Stambaugh
Lower-permeability graphite..June 25 *148
Richardson, Wingate H.
Inspecting the design for missing horseshoe nails .....Apr. 30 126
Unnecessary work: are you guilty? Jan. 8 *122
Will your crew make or break you? Aug. 20 *152
Riddle, Jack H.
Conserve your production dollars with operations engineering .....June 25 *140
Ridley, D. K.
Guide to estimating costs of installed instruments .....May 14 206
Ritzmann, Robert W.
Will nuclear energy fit in the CPI? Sept. 3 117
Robbins, Lester
Calculation form for pipe-branch reinforcements .....Nov. 26 *142
Robbins, M. D.
Key support for new nuclear plant: coolant cleanup .....Sept. 3 *110
Roberts, Sanford M.
Introduction to dynamic programming .....June 25 *121
Roth, Jesse
Solving cubic equations.....Apr. 16 182
Schall, William C.
Selecting sensible sampling systems May 14 *157
Scheyer, Robert H.
Costs of transporting process chemicals Sept. 3 158
Schneider, Rene
Simple shower spray prevents dirt accumulation .....Mar. 19 *188
Schweitzer, O. R. & C. E. Wales
Systematic analysis simplifies problem solving .....Mar. 19 *165
Serven, E. J. & T. J. Snifien
Simplified technique for estimating centrifugal process pump costs Nov. 26 146
Sharbaugh, J. C.
Practical filtration formulas...Dec. 10 *153
Shinskey, Francis G.
Controls for non-linear processes Mar. 19 *155
Shulman, William
Better control of particle sizes..Sept. 3 *129
Chart finds lengths of tubular-flow reactors .....Oct. 29 *138
Physical properties of ethylene glycol Oct. 1 *118
Temperature-entropy diagram for methanol .....Feb. 19 *144
Thermal conductivity of gases and vapors .....Sept. 3 *152
Sinha, V. T.
Nomograph gives equivalent lengths of orifices .....Oct. 29 134
Skinner, John B.
Tabulating the toxics.....June 11 183
Sniffen, T. J. & E. J. Serven
Simplified technique for estimating centrifugal process pump costs Nov. 26 146
Sprague, R. W. & R. C. Oliver
Temperature-compensated distillation column .....Sept. 3 *150
Srinivasa Rao, P. N. & others
New equation correlates transport properties .....May 14 *198
Stambaugh, R. P. & J. F. Revilock
Lower-permeability graphite..June 25 *148
Staples, B. G.
Bolt torques and gaskets for glassed-steel equipment .....Sept. 17 *200
Stapleton, R. N.
Developing the better operator.Oct. 15 *198
Steinherz, Hans A.
High-vacuum technology and equipment .....Aug. 20 *117
Stenberg, J. F. & E. G. Coffey
Designing a high-pressure laboratory Nov. 26 *115
Stephanou, S. E. & others
Calculating free-energy minimization Feb. 19 121
Stern, Arthur L.
Guide to crushing and grinding practice .....Dec. 10 *129
Stevens, Robley D.
How to get information from Washington .....Dec. 24 92
Strage, Henry M.
Implications of the second squeeze on profits .....Oct. 15 175
Strelzoff, S.
More food means more nitrogen needed .....Feb. 5 *44
Stubenrauch, E. H.
Getting the most out of gaskets Sept. 3 *123
Suter, Hans A.
A laboratory-size glass thermosyphon reboiler .....June 11 *204
Swandby, Richard K.
Corrosion charts: guides to materials selection .....Nov. 12 186
Economics of industrial painting
How to reduce maintenance painting costs .....Apr. 30 115
How to analyze costs of painting a new plant .....May 28 *115
Getting your money's worth from paint testing .....June 11 191
Sykes, P. & A. Gomezplata
"Spare parts" make an accurate tachometer .....Mar. 19 *190
Symons, E. F.
Fluorescent tube lightens turbidity problem .....Jan. 22 *146
Tans, A. M. P.
Physical properties of ammonia July 9 *162
Tarnell, Edward
Long-range planning in markets and technology .....May 28 127
Teller, Sam H.
Simple device for testing thermoelectric elements .....June 11 *204
Thompson, R. L. & M. A. Dubs
Cryogenics: lower temperatures at lower costs .....June 11 *152
Todd, David B.
Rating chart helps choose the best extractor .....July 9 156
Torres, A. F. & S. S. Feuer
Flame-resistance testing of plastics Apr. 2 *138
Tracy, Arthur W.
Corrosion of copper alloys.....Jan. 8 *130
Use copper for corrosion-resistant equipment .....Jan. 22 152
Tyler, Chaplin
Management series
The nature of management...Feb. 5 *99
How a good manager hits the mark Mar. 5 *121
Building an organization structure Apr. 2 *107
Steps in becoming a better manager Apr. 30 *105
Reading to become a better manager May 28 111
Training develops the better manager .....June 25 *129
Management planning for growth July 23 *123
Taking the measure of management Aug. 20 *133
Management—art or science? Sept. 17 *189
Unger, Thomas A.
Recirculation via heat exchangers July 23 *119
Uris, Auren
Beauty and the boss.....Nov. 12 *244
Vaillant, A.
Chart finds "lost volume" in cylindrical storage bins .....Feb. 19 *148
Van Hecke, Francis
Pressure drop through bubble caps Nov. 12 *233
Von Der Heydt, Bruce
What do foremen need from their bosses? .....Mar. 5 136
Wales, C. E. & O. R. Schweitzer
Systematic analysis simplifies problem solving .....Mar. 19 *165
Webb, Henry E., Jr.
Be hard-headed about safety gear July 23 *136
Whalen, J. J.
Select and apply gaskets effectively Oct. 1 *83
Wilson, Frank W.
The challenge of higher pressures Oct. 15 *159
Wilson, James R.
Computerized quality control..May 28 *140
Winfield, M. D. & C. E. Dryden
Nomograph gives equipment and plant costs .....Dec. 24 100
Wiseman, James P.
Eight tips toward a better plant June 25 105
Woollen, K. N.
Electrical energy: a versatile heat source .....June 11 *145
Wright, Bernard S.
Chart gives flash fraction in binary feed streams .....Aug. 6 *142
Determining the first guess in dew and bubble points .....July 9 160
New equations simplify calculation of continuous stirred-tank reactors July 23 *115
Wroten, William L.
Refractories resist more than heat June 11 *158
Yates, W. H.
Automatic sampling device has no moving parts .....Feb. 19 *142
Yocom, John E.
Air pollution regulations.....July 23 *103
Hinst, Howard F.
Zimmerman, Arthur
Specialty steels—in a hurry....Dec. 24 *42